You are cordially invited to attend the

"KERSHAWRAMA"

a novel demonstration of Kershaw trackwork machinery

showing a complete package of

reconditioning equipment working under actual job conditions

on the Erie Railroad at Boone Grove, Indiana

fourty-eight miles southeast of Chicago

October first through thirteenth

For a preview of Kershaw machines to be demonstrated during the "Kershawrama" and to be exhibited at the Chicago Convention, see pages 5 through 9.

KERSHAW
MANUFACTURING CO. INC
MONTGOMERY ALABAMA

Now . . . more than ever . . . Recognize This Symbol of Leadership!

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CONDUCTO

DOW

"Of course, our berm is clean!"

Dow products aid smooth over-the-road operation by keeping roadbeds vegetation-free

A conductor's pride in his line goes clear down to the roadbed. He knows that it's smooth and safe, that the ballast and berm are clean. It's just another part of sound railroad management. Odds are, however, he would be surprised at the time, the planning and the amount of Dow chemicals that go into keeping vegetation under control.

But the maintenance-of-way man is different. It's his job. He knows the time and planning involved and how much he depends on Dow weed, brush and grass killers to maintain mile after mile of clean ballast and berm. He knows that they are vital to keeping right-of-ways free of hazardous, unsightly weeds and brush. He knows one sure way to keep service up and operating costs down is to build a low-cost spraying program around five special-purpose Dow vegetation control products.

Write for information on Radapon, containing Dalapon Sodium Salt . . . 2,4-Dow* Weed Killer, Formula 40 . . . Esteron® Brush Killer . . . Esteron 245 . . . Esteron Ten-Ten*. Technical service and assistance are available. THE DOW CHEMICAL COMPANY, Agricultural Chemical Sales Department, Midland, Michigan.

*Trademarks of The Dow Chemical Company.

you can depend on
DOW AGRICULTURAL CHEMICALS

DOW

One of the first ALL STEEL STRUCTURES...

Above left, oxygen cut being made in deck of old bridge. Directly above, old bridge is dwarfed by new lift span.

Goes the fast, efficient way of oxygen cutting

Sixty-three years old, and one of the first all steel structures built in the United States, the steam operated swing span, shown at left above, has carried up to 140,000 passengers a day in and out of New York's busy Manhattan Island. After suffering the mechanical ills of old age, this New York Central Railroad bridge was skillfully removed by using LINDE oxygen cutting.

The old bridge had a four track right of way with a girder structure separating tracks 1 and 3 from 2 and 4. After the tracks were taken up, the deck of the bridge was divided by a series of transverse and longitudinal cuts, and removed. Super structure beams were next to be cut off. Finally, the main side girders were cut into portable lengths and lowered away.

Oxygen and acetylene gases were supplied to the cutting torches by centrally located LINDE cylinders manifolded together.

No matter what your fabricating, repairing, or scrapping needs may be—LINDE can help you do the best job, in the least amount of time. Call your local LINDE representative for detailed information on LINDE'S processes—or write for specially prepared literature. Start saving now, do it today.

RAILROAD DEPARTMENT

OXWELD TRADE-MARK

Linde Air Products Company

A Division of Union Carbide and Carbon Corporation

30 East 42nd Street UCC New York 17, N. Y.

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Division of Union Carbide Canada Limited, Toronto

Supplying to railroads the complete line of welding and cutting materials and modern methods furnished for over forty years under this familiar symbol . . .

"Linde" and "Oxweld" are registered trade-marks of Union Carbide and Carbon Corporation.

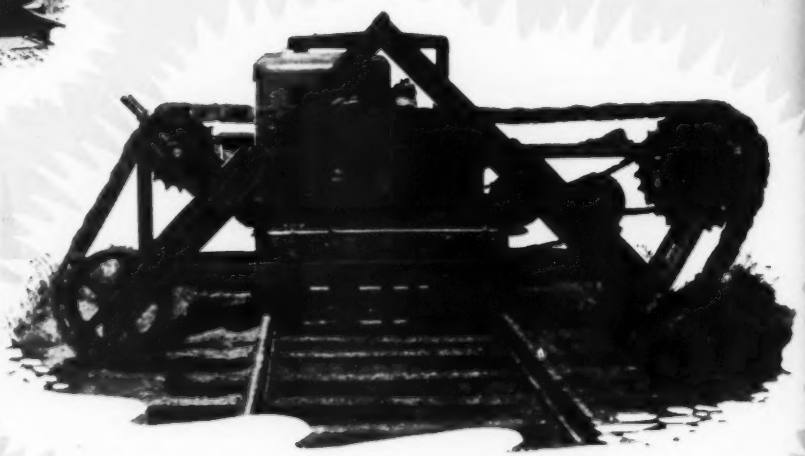
Kershaw Machines

for Track Reconditioning Operations

THE KERSHAW SPOT TAMPER – Used at head of reconditioning gang to raise and tamp track and to provide new profile. This versatile machine may be used later in gang for final tamping in surfacing operations.

THE KERSHAW TWO-WHEEL KRIBBER – Removes crib ballast between rails and between tie heads.

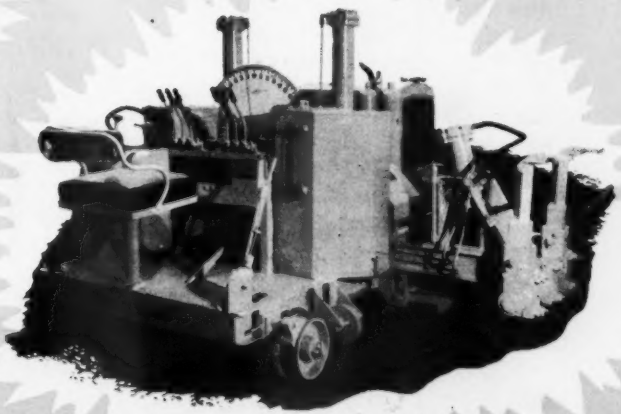
THE KERSHAW UNDERCUTTER AND SKELETONIZER- Completes the cribbing operation and undercuts and lowers the track if desired.



THE KERSHAW TRACK CRANE – Distributes new ties to proper location, also picks up and stacks old ties.

THE KERSHAW BALLAST CLEANER – Picks up old ballast placed by Skeletonizer and Undercutter at tie ends, screens out dirt and foreign material, and returns cleaned ballast to track ready for surfacing.

THE KERSHAW BALLAST REGULATOR – Distributes ballast in center of track and on shoulders ahead of tamper. After surfacing, shapes ballast shoulder to desired section.



THE KERSHAW JACK-ALL – Raises track and catches off adjacent ties ahead of surfacing operation.

THE KERSHAW TRACK BROOM – Sweeps ballast from tops of ties, filling empty cribs and sweeping excess ballast from center of track, placing it on shoulder. The Kershaw Track Broom also may be used to remove car drippings in yard cleaning operations.

Now... more than ever...

Recognize This Symbol of Leadership...

KERSHAW
MANUFACTURING CO. INC
MONTGOMERY ALABAMA

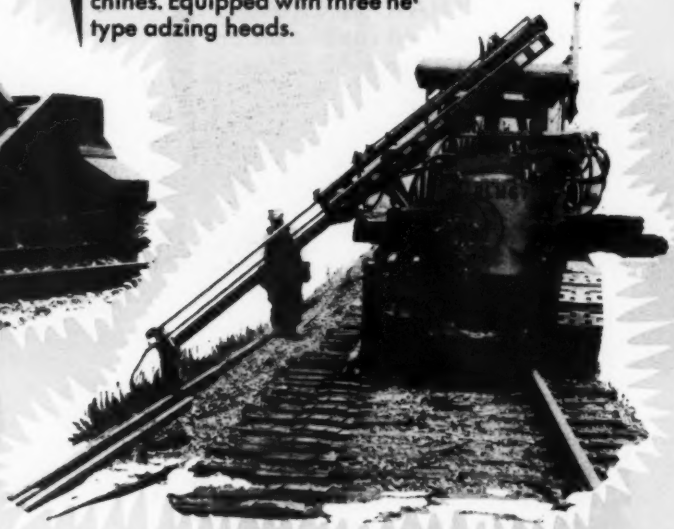
Kershaw Machines

for Rail Re-Laying Operations

THE KERSHAW DEAD HEAD DETECTOR – Works ahead of Crib-Adze or Adzers. Magnetic detector indicates dead heads. Provided with small compressor and hammer for driving down dead heads.

THE KERSHAW CRIB-ADZE – Cribs between ties and adzes ties in one operation, doing work normally requiring five ma chines. Equipped with three ne type adzing heads.

THE KERSHAW RAIL RE-LAYER – Follows Crib-Adze, laying rail to gauge. Crane at rear of machine also may be used to set off smaller equipment.



***Now . . .* more than ever . . .**

Recognize This Symbol of Leadership . . .

KERSHAW
MANUFACTURING CO. INC
MONTGOMERY (K) ALABAMA

News Notes

. . . a resumé of current events throughout the railroad world

RAILWAY
TRACK and STRUCTURES
SEPTEMBER, 1956

For sale: 406 passenger stations—large and small. The New York Central has announced that it is offering the stations—ranging in size from a one-man station at Wolverine, Mich., to the large Detroit, Buffalo and Toledo terminals—for sale or lease. Excluded will be stations only partially owned by the NYC, real estate holdings in Manhattan, and a number of other stations. Who'll buy them? Reports are that negotiations are now under way for converting one into a super market—another into a convention hall. Stating that service will not be affected by the move, the road announced that it will lease back whatever it needs in the way of passenger facilities. Earlier last month, the NYC filed for a 45 per cent increase in first-class fares. Both moves are intended to reduce the road's reported $37.8 million passenger service deficit incurred in 1955.

•

Union organizers seem to have failed in their attempts to organize mechanical foremen on the Delaware & Hudson. The American Railway Supervisors' Association, seeking certification as representative of the foremen, asked the National Mediation Board to arrange an election on the D&H. The election was scheduled for July 31-August 1. Reports have been received from reliable sources to the effect that, on August 2, the union requested cancellation of the election and consequent withdrawal of the application for certification.

•

Strike ballots are being passed out to members of the 11 non-operating unions. Returns are scheduled to be in by September 12. A union spokesman has said the unions feel current negotiations are "dragging" and ought to be expedited by a Presidential emergency board. Main reason for the move: the railroads' proposed 6½-cent wage cut in answer to the union demand for a 25-cent increase.

•

More passenger service "bit the dust" on August 12 as the last Chicago Great Western passenger train pulled out of Chicago's Grand Central Terminal. The road still operates passenger service between Dubuque, Iowa, and Oelwein—pending a decision on a discontinuance case now before the Iowa State Commerce Commission.

•

John W. Barriger, vice-president of the Rock Island since '53 and author of "Super Railroads for a Dynamic Economy," has been elected president of the Pittsburgh & Lake Erie.

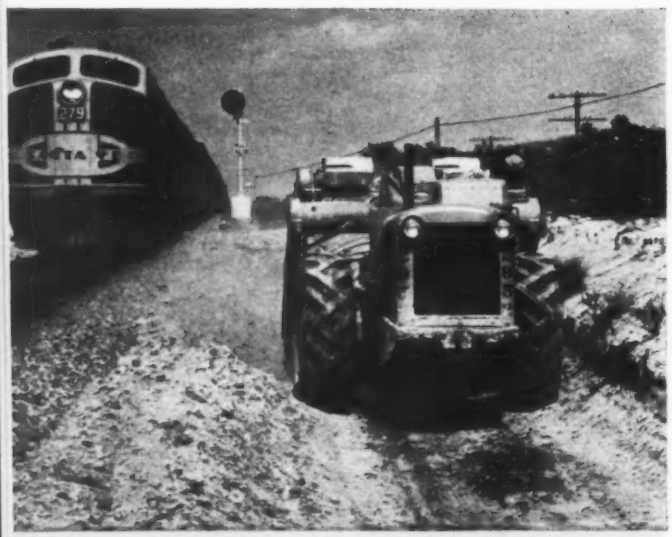
•

With the trend toward corporate mergers under attack by persons both in and out of government, the general policy committee of the Brotherhood of Locomotive Firemen and Enginemen voted to affiliate with the recently merged AFL-CIO. BLFE will contribute some 50,000 members.

•

The 67-mile-long, 3-locomotive Bamberger railroad, running between Salt Lake City, Utah, and Ogden, has been purchased by a group of Texas financiers including millionaire Clint Murchison. Mr. Murchison, it will be recalled, played an important role in Robert R. Young's fight for control of the New York Central.

How "D" Handyman restores embankment shoulders, speeds maintenance for A. T. & S. F.



Cleaning drainage ditches is one of the many uses put to A.T. & S.F.'s D Tournapulls. This is an ideal project for "D's" rapid speed and mobility.

The Atchison Topeka & Santa Fe uses 3 off-track rubber-tired D Tournapulls to handle scattered maintenance along its right-of-way.

For example, on the Pecos Division, 5 miles east of Willard, New Mexico, the A.T. & S.F. restored embankment shoulders.

At one location the rubber-tired 138 hp D Tournapull hauled material from cuts at each end of fill. The material was a mixture of clay, sand and caliche. Tournapull self-loaded an average of 5 yards at each pass and spread its load along the fill in thin lifts. Travel back and forth on "D's" big low-pressure tires provided firm compaction.

Tournapull delivers load of sandy clay and caliche, mixed, to restore embankment shoulders.

The "D" worked in a "figure 8" pattern on the 2000′ cycle, averaging two loads in 5 minutes, for a total of 22 loads per 55-minute hour. This gave an output of 110 yds. per hour.

The Railroad "Handyman"

A.T. & S.F. also use their "D's" to dig and clean drainage ditches, trenches for culverts, remove drifting sand, build and repair access roads, and many other "handyman" maintenance assignments.

The "D's" ability to travel under its own power cross-country as well as on highways and along rail roadbeds, makes it an ideal tool for railroad maintenance. The D Tournapulls are liked for roadability — if a rig is needed at a new location several miles distant, it reaches the job with a minimum of lost time.

"D" advantages

Another factor is its ease of operation and maneuverability. The "D" turns around in an area only 26′ wide. Operators like the electric-controls on this Tournapull. They particularly like the way they can maneuver in close quarters, and on this job there is a lot of close-quarter work.

It will pay you to investigate this versatile rubber-tired machine. Ask your LeTourneau-Westinghouse Representative for detailed information on how the "D" can cut ditches, spread ballast, travel from job-to-job at speeds up to 28 mph, for fast, low-cost handling of scattered maintenance and railroad construction.

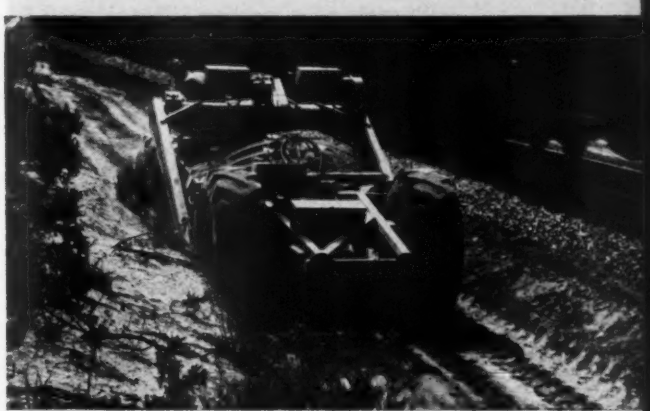
Tournapull—Trademark Reg. U.S. Pat. Off. DP-931-RR

LeTourneau-WESTINGHOUSE Company

Railroad Sales Division, Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company

D Tournapull spreads load on the run.



Self-loading, D Tournapull gets about 5-yard load for fill. "D" loads at both ends of cut.

FREE . . . "The Railroad Handyman"

20-page book shows how 7½-yd. self-loading D Tournapull cuts time and costs on right-of-way maintenance. Send coupon for your free copy. No obligation. Also ask to see our color movie, "Clear the Track".

Name .....

Title .....

Address .....

Railroad .....

Division .....

To celebrate its first birthday

THE D9 GETS INCREASED HP

—more power for your operation!

320 HP
(FLYWHEEL)

formerly 286 HP

260 HP
(DRAWBAR)

formerly 230 HP

The giant Turbocharged CAT* D9 Tractor, which since its introduction last year has set new performance standards in the field, now packs more power than ever to handle even bigger jobs. Its drawbar capacity has been increased from 230 HP to 260 HP—its flywheel horsepower from 286 to 320!

This increase in power reflects Caterpillar's policy of leadership in action. Combining research with practical field experience, there's constant product improvement to meet your needs for bigger production at lower cost. This policy applies to *every* product in the Caterpillar line—Diesel Engines, Tractors, Motor Graders and Earthmoving Equipment.

Now, with its increased horsepower, you can give the D9 tougher jobs than ever before. To match your requirements, it's available with torque converter or direct drive with oil clutch. For complete details about the more powerful D9, see your Caterpillar Dealer. Name the date—he'll be glad to demonstrate!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

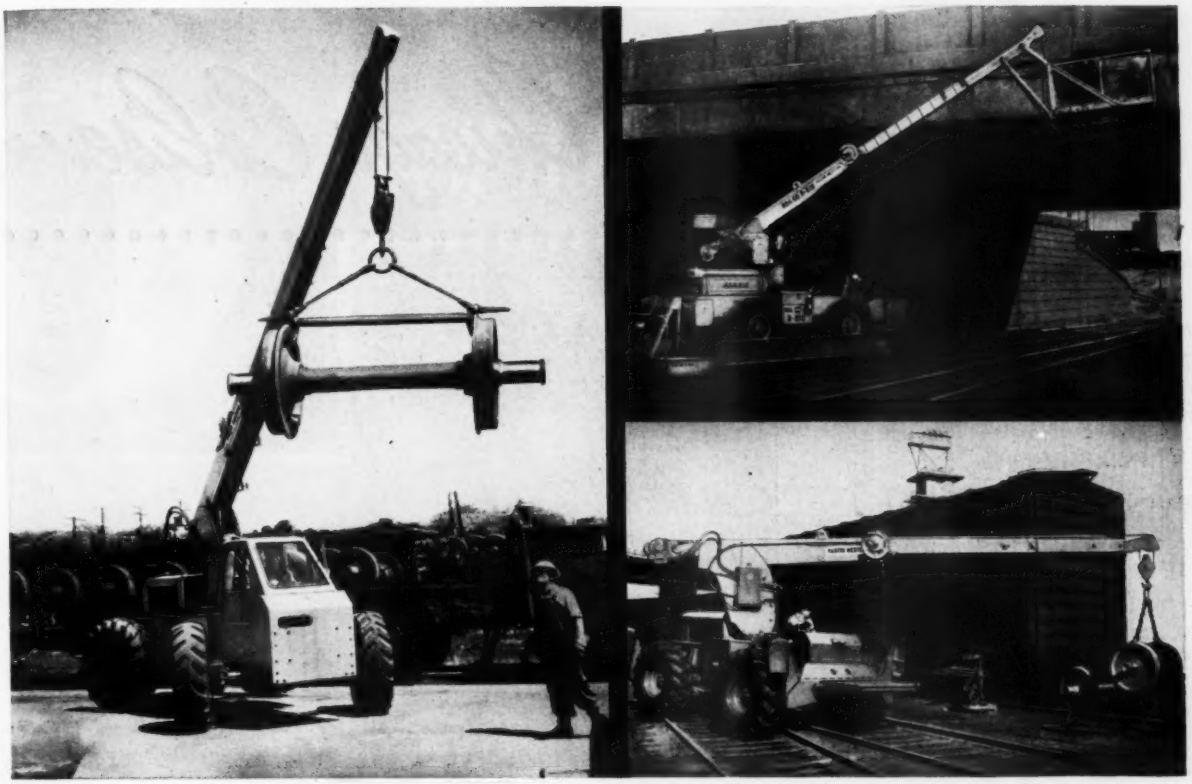
CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

D9—MORE POWERFUL FOR BIGGER PRODUCTION

AUSTIN-WESTERN HYDRAULIC CRANE

Off-Track On-Track Workhorse



along Right-of-Ways...in Shops and Yards

ONE-MAN OPERATION—FULL HYDRAULIC—ALL-WHEEL DRIVE AND STEER—CONTINUOUS 360° BOOM ROTATION—Yes, no other materials handling unit can give you this remarkable combination of operational features.

No matter what the assignment, the versatility of your Austin-Western Hydraulic Crane will pay off in *more work at less cost.*

You name it, A-W will do it.

MAINTENANCE OF WAY: Laying rails; handling ties and miscellaneous track materials and equipment; setting fuel tanks.

BRIDGE AND BUILDING: Handling and moving timbers, gondolas, precast and prefabricated deck slabs; picking up and moving small buildings.

MECHANICAL SHOPS: Lifting and handling heavy equipment, jigs and parts, repair tracks, and maintenance of locomotives and cars.

STORES DEPARTMENTS: Unloading gondolas and box cars; handling wheels, axles, truck frames; loading and unloading scrap and salvage materials; stock piling materials and parts.

BALDWIN · BLH · LIMA-HAMILTON

AUSTIN-WESTERN WORKS
BALDWIN-LIMA-HAMILTON
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OTHER DIVISIONS: Eddystone • Lima • Electronics & Instrumentation • Hamilton • Loewy-Hydropress • Standard Steel Works • Madsen • Pelton

AURORA, ILLINOIS, U.S.A.

Power Graders • Motor Sweepers • Road Rollers • Hydraulic Cranes

See Us at the Show
BOOTH NO. 75
CHICAGO COLISEUM
September 17 to 20

Coming to the Chicago Coliseum

SEPTEMBER 17 TO 20

5 new Nordberg Track Machines

• From the time the first Nordberg Track Maintenance Machine was introduced over a quarter-century ago to the present day . . . America's leading railroads have made Nordberg *"Mechanical Muscles"*® the standard by which modern maintenance machinery is compared.

Looking ahead to the future needs of the nation's railroads, Nordberg now presents five new Track Maintenance Machines which will be shown for the first time in the South Hall of the Chicago Coliseum, September 17 to 20.

As with all of the more than twenty-five Nordberg *"Mechanical Muscles"*, these five new track machines have been designed, built, tested and proved with the cooperation of railroad men. This is further evidence of progress and constant assurance that Nordberg will continue to serve you better with an ever increasing line of dependable maintenance machines.

Be sure to see the bigger than ever Nordberg exhibit at the 1956 Chicago Show.

NORDBERG *"Mechanical Muscles"*®

ADZING MACHINE • TIE DRILL • RAIL DRILL • RAIL GRINDERS • CRIBEX® • BALLAST ROUTER • TRACKSHIFTER • DSL® YARD CLEANER • BALLASTEX® • SCREENEX® • TAMPING JACK • GANG TAMPER • POWER JACK • TRAKLINER • HYDRAULIC and MECHANICAL SPIKE PULLERS • SPIKE HAMMER • POWER WRENCH • GANDY®-TIE PULLER and INSERTER • DUN-RITE® GAGING MACHINE and BRONCO • TIE-KAT® • TAMPING POWER JACK • TRACK SURFACING DEVICE

1. SURF RAIL GRINDER
This latest addition to the well-known Nordberg Rail Grinder line is a one-man, lightweight machine for surface grinding on such jobs as built up rail ends, removing mill tolerance, leveling cropped rail, removing wheel burns, etc.

2. TAMPING POWER JACK
This newly introduced self-propelled Nordberg Track Machine is operated by one man, and efficiently raises track and tamps key ties at lifting points.

3. TIE-KAT®
A self-propelled, crawler mounted off-track tie remover and inserter. Tie handling mechanism is hydraulically operated and crawlers are vertically adjustable to fit ballast shoulder slopes.

4. DUN-RITE BRONCO
A propulsion unit for the Dun-Rite Gaging Machine and Pregager. Single, power driven crawler tread runs on the top of ties. Reduces men required in Dun-Rite Gaging operation from five to three.

5. TRACK SURFACING DEVICE
Employs a tightly drawn thin steel wire, each end connected to a small four wheel car with light weight carriages between the two cars for support. Device eliminates the use of grade stakes or spot boards for track resurfacing or raising.

NORDBERG MACHINERY

NORDBERG

Serving the Nation's Railroads for over 25 years

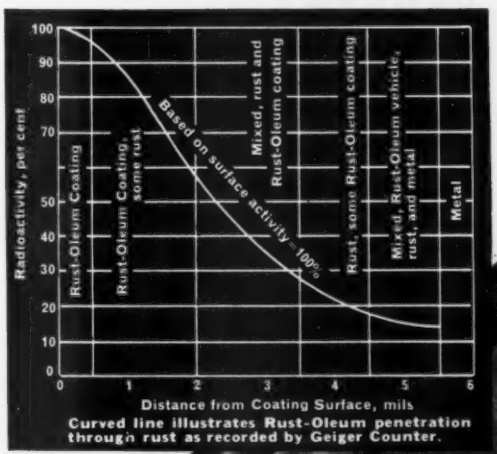
NORDBERG MFG. CO.
MILWAUKEE
WISCONSIN

RUST-OLEUM®

PENETRATION

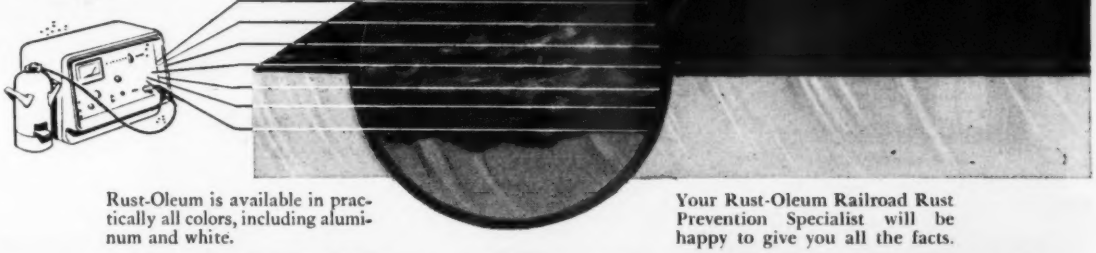
through rust to bare metal traced by Geiger Counter. To effectively stop rust—the vehicle of a protective coating, when applied over a sound, rusted surface—must penetrate through the rust down to bare metal. **Rust-Oleum does exactly that!—as proved by radioactive research!** Rust-Oleum's specially-processed fish oil vehicle was radio-activated and formulated into Rust-Oleum 769 Damp-Proof Red Primer—then applied to rusted test panels. Penetration *through rust* to bare metal by Rust-Oleum's specially-processed fish oil vehicle was then traced by Geiger Counter.

You stop rust, because Rust-Oleum's fish oil vehicle soaks deep down to bare metal and into the tiny pits where it drives out air and moisture that cause rust. You save, because this same *penetration* enables you to apply Rust-Oleum directly over rusted surfaces—usually eliminating costly surface preparations. Attach coupon to your letterhead for your thirty-page report entitled, "The Development of a Method To Determine The Degree of Penetration of a Rust-Oleum Fish-Oil-Based Coating Into Rust On Steel Specimens," prepared by Battelle Memorial Institute technologists.



Curved line illustrates Rust-Oleum penetration through rust as recorded by Geiger Counter.

There is only one Rust-Oleum. It is distinctive as your own fingerprint. Accept no substitute. Buy—and specify only Rust-Oleum. You'll be happy that you did.



Rust-Oleum is available in practically all colors, including aluminum and white.

Your Rust-Oleum Railroad Rust Prevention Specialist will be happy to give you all the facts.

RUST-OLEUM®

STOPS RUST!

ATTACH TO YOUR LETTERHEAD—MAIL TODAY

Rust-Oleum Corporation
2550 Oakton Street
Evanston, Illinois

- ☐ Complete literature including color charts.
- ☐ Thirty-page report on Rust-Oleum penetration.
- ☐ Nearest source of supply.

Ingersoll-Rand

SPOT-AIR

36 cfm

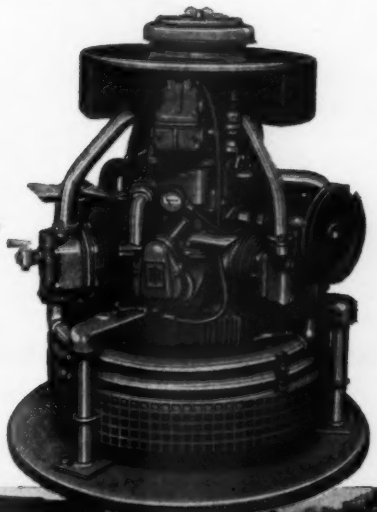
This compact, versatile compressor

MULTIPLIES MANPOWER

all along the line!

USE IT TO OPERATE

- Tie Tampers
- Rail Grinders
- Impact Wrenches
- Spike Drivers
- Nail Drivers
- Diggers
- Paving Breakers
- Concrete Vibrators
- Riveters
- Electric Generators and other tools



I-R Spot-Air compressor operating an I-R rail grinder. Note special "roll-along" railbarrow mounting with track-spaced rollers.

I-R Spot Air compressor driving an I-R impact wrench for tightening rail joints. Railbarrow mounting (with built-in air receiver) can easily be moved off the track in a hurry.

With the Ingersoll-Rand gasoline engine driven Spot-Air compressor, you can replace muscle power with low-cost *air power* on hundreds of railway maintenance and construction jobs.

The Spot-Air is so small, so light, so easy to move, that you can take it anywhere. Weighing only 265 pounds, it delivers full 36 cfm at 80 psi. That's ample power to operate four tie tampers—or to drive any of the other cost-saving air tools noted above. Yet one or two men can move it with ease—and it takes up only 4 square feet of floor space in a section car or truck.

Completely air cooled, this ruggedly constructed, self-contained unit will operate in any kind of weather without danger of freezing or overheating. For the complete Spot-Air story, send today for your copy of Bulletin 2264-B.

Ingersoll-Rand

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AIR POWER AND AIR TOOLS FOR LOW COST MAINTENANCE OF WAY

For Track at its Level Best . . .

PULLMAN-STANDARD

Power Ballaster

With a production rate of 500 to 700 feet an hour, a Pullman-Standard Power Ballaster, run by a single operator, can be efficiently manned by a crew of 10 to 15 men. Case history studies made on 14 railroads prove that this unit will give more feet of finished tamped track per hour, with less labor and maintenance, than any other production tamper.

PULLMAN-STANDARD

Power Cleaner

and Winch Car Team

For the first time both track shoulders can be cleaned simultaneously at 1000 to 1200 feet per hour with only four men. Even in multiple track territory, the shoulder plus half the six-foot are cleaned to a depth of eight to ten inches below the tie base at the same high rate and with the same low labor complement. Your ballast cleaning costs can be reduced by as much as 50%.

PULLMAN-STANDARD

Power Cribber

The Pullman-Standard Power Track Cribber gives you two cribs a minute, with a single operator. With a normal production rate of 100 to 225 track-feet per hour, its interchangeable 4-, 5-, and 6-inch digger tips enable it to crib efficiently and economically in any type of ballast, regardless of cementation.

YOUR NEEDS CREATE THE PULLMAN "STANDARD"

PULLMAN-STANDARD

CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

221 N. LA SALLE STREET, CHICAGO 1, ILLINOIS

BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON

Picture courtesy of N.Y.N.H. & H.R.R.Co.

BIRD SELF-SEALING TIE PAD AFTER 5 YEARS SERVICE is removed for inspection. Pad had to be pried from tie owing to tenacious seal that is characteristic of all Bird Tie Pads. Reapplied, and becoming resealed after inspection, the Bird Tie Pad is good for many additional years of protective service.

Slash your tie costs 50% with BIRD Self-Sealing TIE PADS

FACTS YOU SHOULD KNOW ABOUT BIRD TIE PADS

It is common knowledge that moisture and abrasive materials destroy the supporting power of the wood under the tie plates and the holding power of the spike wood.

The Bird Self-Sealing Tie Pad was specifically developed to combat these destructive agents. *For that reason, it is entirely different in design, construction and function from any other tie pad on the market.*

This difference lies in the ability of the Bird tie pad to maintain dimensional stability. It cannot stretch or compress under passing wheel loads . . . so that it provides a constant, unbroken seal.

The Bird Self-Sealing Tie Pad completely and permanently seals out moisture and abrasives . . . the *causes* of decay under the plates . . . and, in addition to this, it prevents mechanical wear by acting as a buffer between the tie plate and the tie.

As specialists in the scientific preservation of wood for much of our 161 years in business, we are qualified to help you extend the service of your ties in track.

WHERE

- On the joint and shoulder ties of insulated joints.
- On new or older bridge decks.
- On switch timbers.
- Under crossing frogs.
- Through highway grade crossings and station platforms.
- On curves to insure holding track to gauge and surface.
- With smaller tie plates.
- Out-of-face with new or relayer rail.
- On pile cut-offs.

RESULTS

- You get 50% extra life from new ties.
- You get twice the normal remaining life expectancy from old ties that can be adzed to a smooth surface of sound wood.
- You save on gauge, line and surface maintenance costs in addition to savings on tie life.

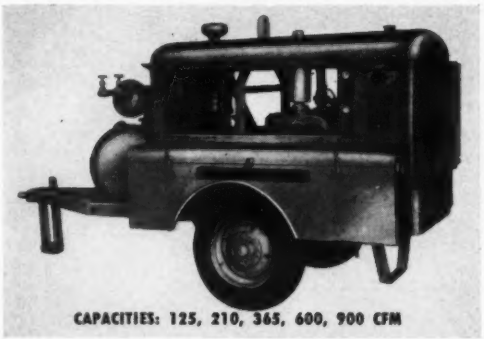
WHEN

You start saving as soon as you start using Bird Self-Sealing Tie Pads. Bird's is the original self-sealing tie pad . . . proven by years of in-track service. Write for further information, today . . . Bird Tie Pads, Dept. HTS-9, East Walpole, Massachusetts.

BUY THE BEST BIRD & SON, inc. Established 1795 **BUY BIRD**

See the Chicago Pneumatic 125 cu. ft. "Power Vane" Rotary Compressor on Display

Other equipment:
TAMPERS, SPIKE DRIVERS, CHIPPERS, SCALERS, RIVETERS, RIVET BUSTERS, GRINDERS and WIRE BRUSH MACHINES



CAPACITIES: 125, 210, 365, 600, 900 CFM

See the New CP-610 Air Wrench *at the show*

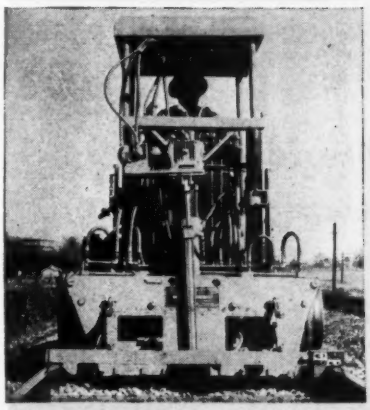
When you're at the Convention "drop in" to Booth 42. Ask to see the new CP-610 Reversible Air Impact Wrench. The CP-610's new impact mechanism delivers a 50% power bonus . . . and the wrench is 7 pounds lighter and 2 inches shorter than any other wrench of equivalent rating. Its new design affords an absolute minimum of maintenance . . . requires 30% less air. And while you're there, be sure to see the rest of CP's complete line of railroad construction and maintenance equipment.

CP-610-RP Reversible Air Impact Wrench has the reserve power, balance, short length and accurate control needed for installation of high strength bolts.

Chicago Pneumatic 8 East 44th St., New York 17, N. Y.

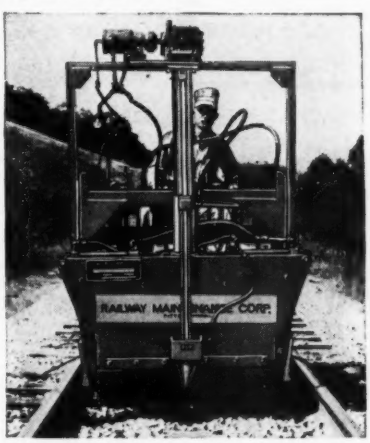
SPEED RECORDERS AND INDICATORS • STATIONARY AND PORTABLE AIR COMPRESSORS • PNEUMATIC AND ELECTRIC TOOLS • HYDRAULIC RIVETERS

A *New* Track Lining Machine for Mechanized Maintenance Gangs



Lining tangent with target on machine and without retracting wheels.

Left wheels retracted to give man doing sighting clear view of the rail.



CRAWLER-MOUNTED LINEMASTER, which operates between the rails, also is available.

R·M·C·

WHEEL-MOUNTED LINE *Master*

LineMaster will line from 1,000 to 2,000 feet of track per hour, with one operator and one man for sighting.

With lining head of machine anchored to the roadbed by a power-driven spud inserted in the crib, hydraulic cylinders under precise control of the operator move track in either direction. LineMaster, either wheel or crawler type, is equipped with hydraulic lifting ram for turning or setting off machines.

Railway Maintenance Corporation

BOX 1888, PITTSBURGH 30, PA.

Designers and Manufacturers of: McWilliams Mole, Super Mole . . . McWilliams Tie Tamper, Crib Cleaner, Ballast Distributor . . . TieMaster . . . LineMaster . . . SpikeMaster . . . Boltmaster . . . Tie Unloader

An Important Message For Our...

NINETY-FIVE MAJO

You have proved the dollar-for-dollar value of the Aladdin Lubricator on short curves, frogs and switches.

You have told us that this sturdy grease lubricator gives excellent service in all climates, with little or no maintenance.

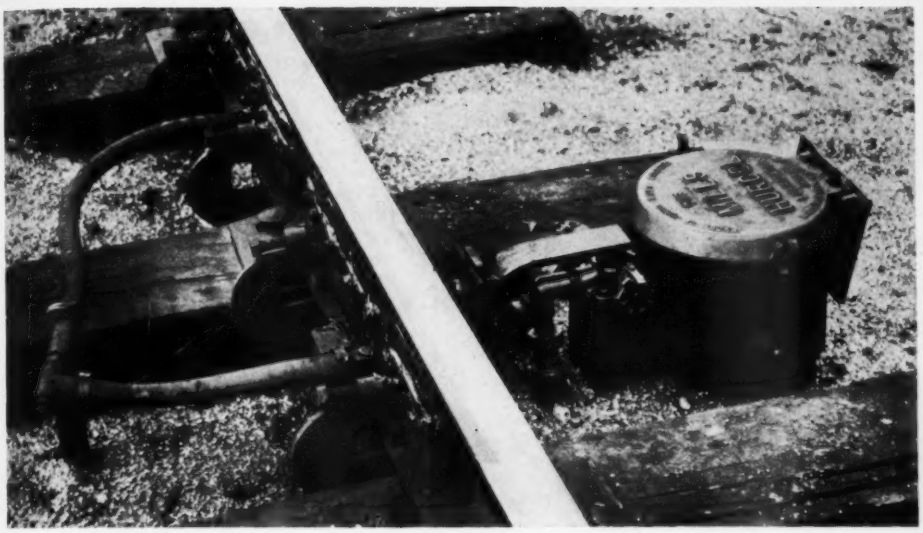
The **ALADDIN**
Rail Lubricator
$195.00
delivered anywhere

You have liked its simple installation which takes but one-half a man-hour.

And your hundreds of repeat orders confirm your satisfaction with its performance.

H. T. KENNEDY COMPANY, INC.

RAILROAD CUSTOMERS



NOW. . . we are pleased to announce the availability of the **ALADDIN** Lubricator's big brother—the **HURCOL**. You will find the **HURCOL** excellent for <u>both</u> short and long curves . . .

- Operates at any speed
- No rail drilling or other rail preparation
- Installed by two men in one hour
- Outside or inside rail installation
- No wear—no contact between wheels and lubricator
- Uses standard grease—is easily refilled
- Lubricates three miles each way
- Output easily adjusted
- Pump readily accessible and removable
- Has automatic "empty" indicator
- Guard rail applicators available

The HURCOL Rail Lubricator $392.00 with two applicators delivered anywhere

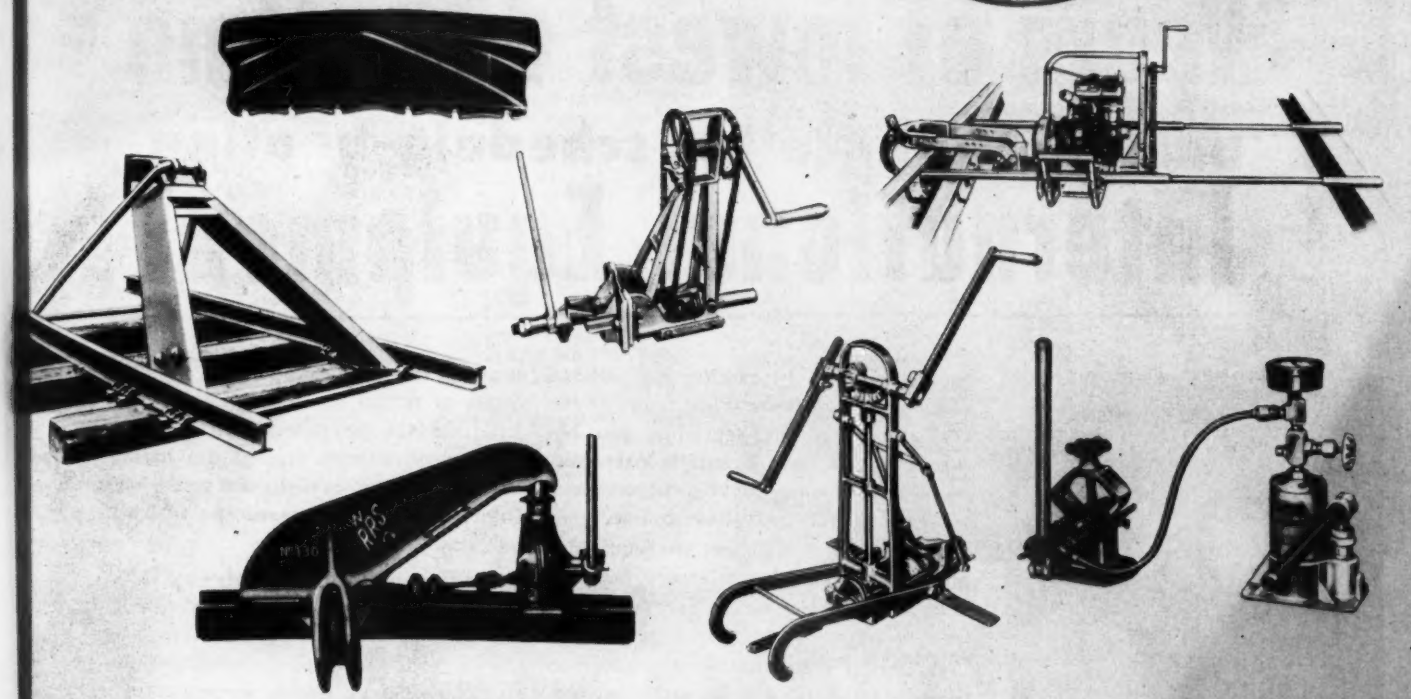
AVAILABLE SOON WITH A 20-lb GREASE TANK (Additional Cost)

67 WEST 44th ST., New York 36, N. Y.

WESTERN RAILROAD SUPPLY COMPANY'S
new Maintenance-of-Way Division is manufacturing and marketing these widely-known quality products, formerly supplied by BUDA Division of Allis-Chalmers Manufacturing Co. Quality and dependability remain the same; only the name is changed . . .

BUDA to WRRS

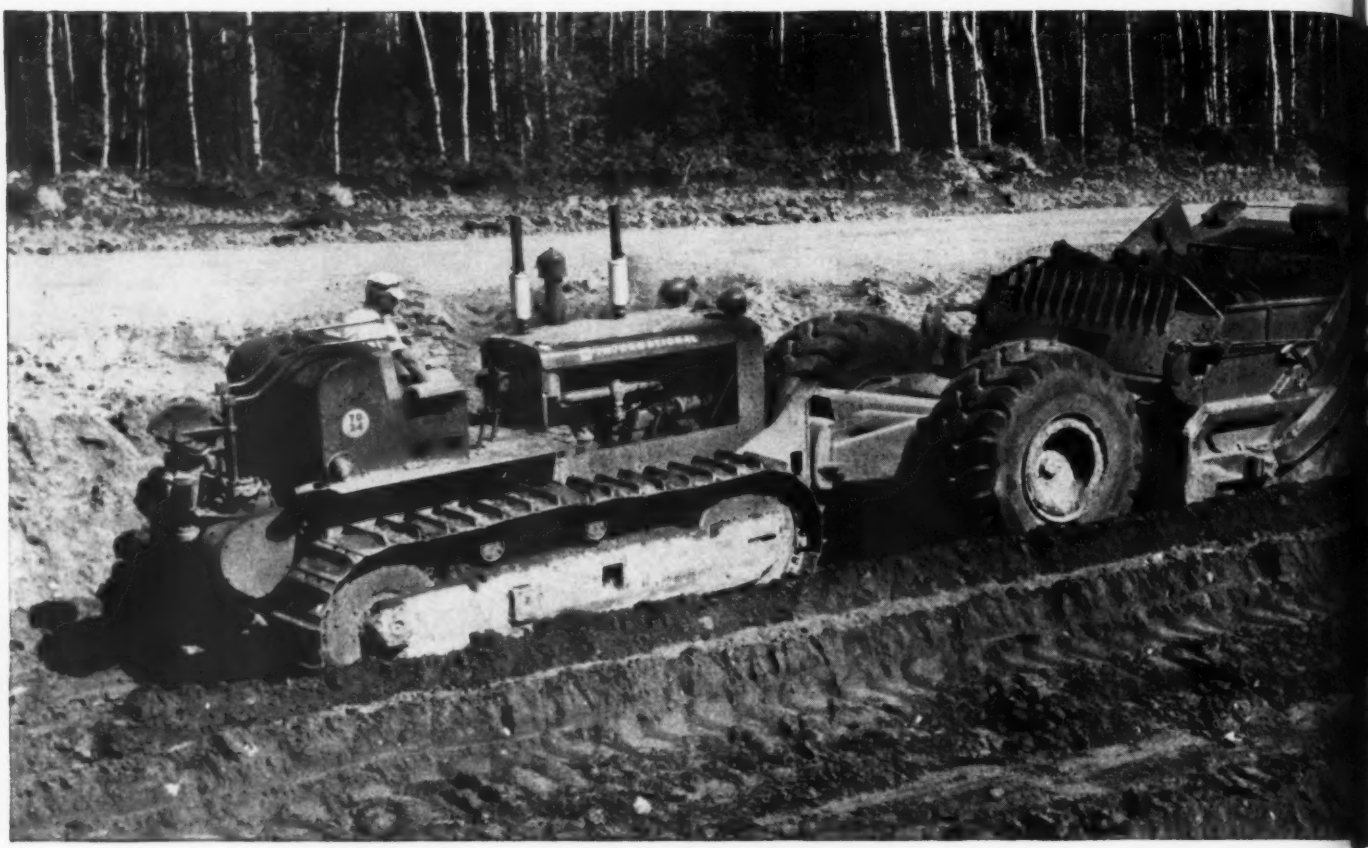
See Our Display—Booth No. 43-N
T.S.A. and B. & B. A. Show
Chicago Coliseum
September 17 to 20



WESTERN RAILROAD SUPPLY COMPANY

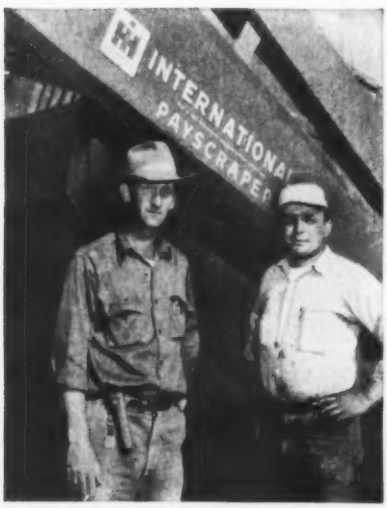
General Offices and Factory
2400-2434 South Ashland Avenue, Chicago 8, Illinois

IN CANADA: Melville Machinery Co., Ltd., Montreal 3, Que. • T. S. Taylor Machinery Co., Ltd., Winnipeg 12, Man. • Simson-Maxwell, Ltd., Vancouver



"Years of lowest downtime"

back preference for schedule-beating International® Equipment . . .



Foreman Milton D. Peterson and Supt. H. L. Radandt beside one of Radandt's new Payscrapers.

Approximately ½ million cu. yds. of excavation and borrow are required for this relocation and regrading job between Ojibwa and Ladysmith, Wisconsin —involves clearing, grading, culverts, and sand gravel fill up to base course.

Cuts as deep as 21 feet are required—and one 32-foot fill is necessary, because of a 22-foot deep marsh excavation, to base new road on firm footing.

A 12-unit International prime mover fleet — pushers, dozers, rubber-tired Payscrapers®, and crawler-scraper team —is what Contractor H. F. Radandt, Inc., banks on to "wind 'er up," ahead of the Wisconsin winter, with a profit!

"Have been using International crawlers since 1946," states Supt. H. L. Radandt, for the contracting firm. "Presently we have nine International crawlers and three Payscrapers in the fleet. Years of actual operation have proven International equipment had given us good service with lowest downtime. We do all our own repair work, and International design is simple to work on."

For every maintenance-of-way job—Prove how exclusive Planet Power steering with full-time live power on both tracks, plus finger-tip operating ease, give the TD-24 exclusive production-boosting advantages! Compare capacity of new bonus-powered International equipment to anything else on tracks or wheels. Speed every maintenance-of-way job...daylight curves, relocate old or build new road beds, reduce grades, clean ditches, improve drainage... quickly repair washouts and slides.

"**The new design 75 Payscraper** bowl loads and unloads, fast and easy," declares Supt. Radandt. "Estimated average load: 18 pay yards." Here, loading time with TD-24 as pusher, the 75 heap-loads in 45-60 seconds, in silt-sand-gravel mixture!

Dumping of the new 75 Payscraper takes only 10 seconds. Higher apron lift, and bigger apron opening assure new dumping speed and positive load ejection. The new Payscraper's high horsepower - to - capacity ratio permits rapid acceleration to 24 mph top speed — a big yardage-booster!

The three Payscrapers in the Radandt fleet average 2200 cu. yds. per 10 hours—on a 6300 lineal-foot round trip. "The new '75' has matched engine power to deliver the payload fast, and flotation to take roughest cut or haul-road conditions," adds Mr. Radandt.

This torque-converter TD-24 is one of three International crawlers towing scrapers on the job—hauling up to 1000 lineal feet one way. With 200 net engine hp and full-time traction power on both tracks with Planet Power steering, this outfit hauls fill dirt into one of the 22-ft. deep cuts.

Another TD-24 — a veteran in the Radandt fleet —spreads and compacts fill dirt on one of the marsh-excavated spots. For jobs like this, there are 42 new blades in the International line to fit your conditions, and match new bonus-powered International crawlers.

—by H. F. Radandt, Inc.,

Eau Claire, Wisconsin

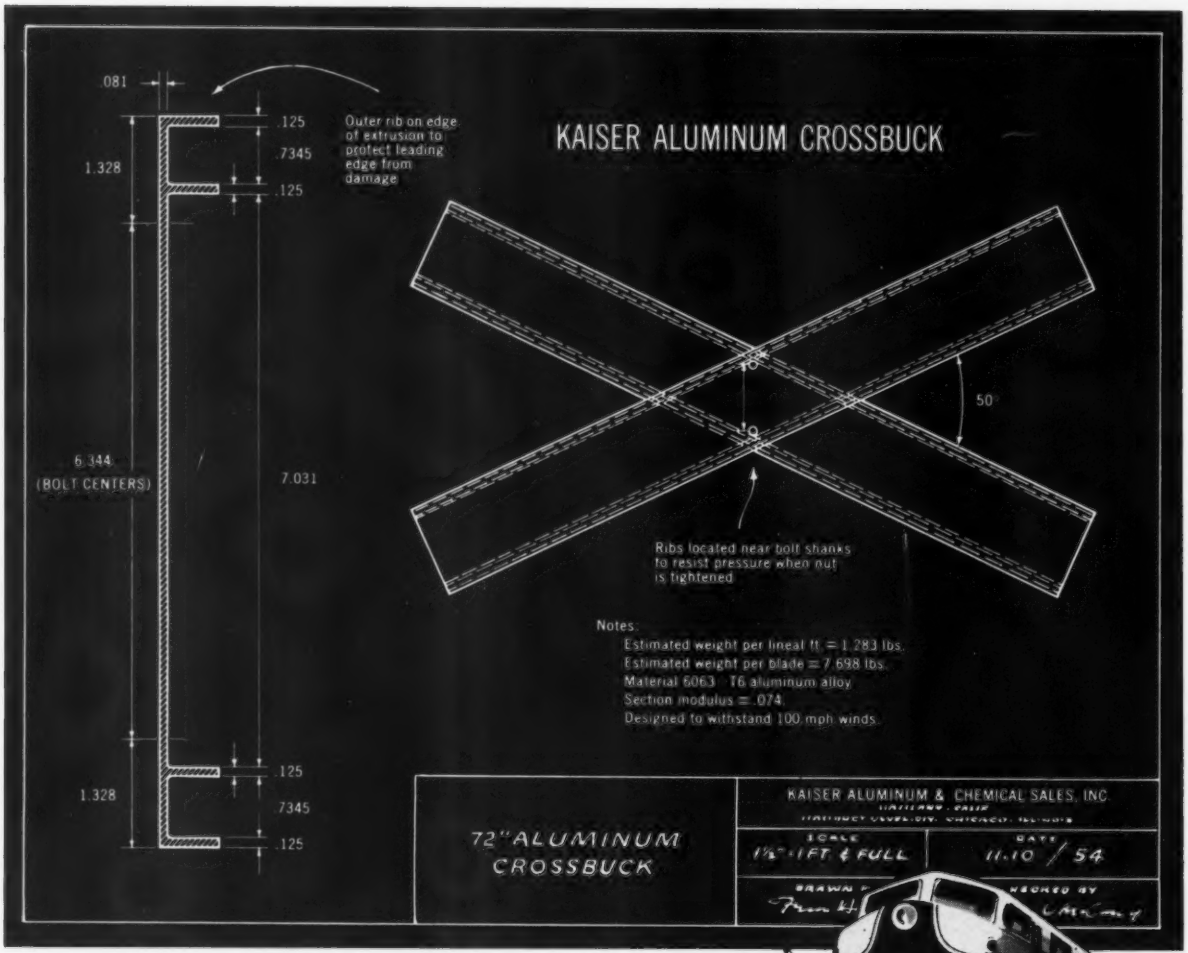
See your nearby International Construction Equipment Distributor for a demonstration of your best buy in off-track maintenance equipment!

INTERNATIONAL HARVESTER

INTERNATIONAL® Construction Equipment

International Harvester Company, 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE INCLUDING: Crawler, Wheel, and Pipeline Tractors . . . Self-Propelled Scrapers and Bottom-Dumps . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Trucks . . . Diesel and Gasoline Engines . . . Motor Trucks



Stronger

because it's the Kaiser Aluminum extruded crossbuck design!

THE SECRET OF STRENGTH of this lightweight crossbuck—adopted as standard by a number of major railroads—is a unique rib design developed by Kaiser Aluminum engineers.

Note in the illustration the strategic location of the outer ribs on *the edge* of the buck. This prevents damage to the leading edges. Also, notice that the ribs are located close to the bolt shanks to resist the crush load when the nut is tightened.

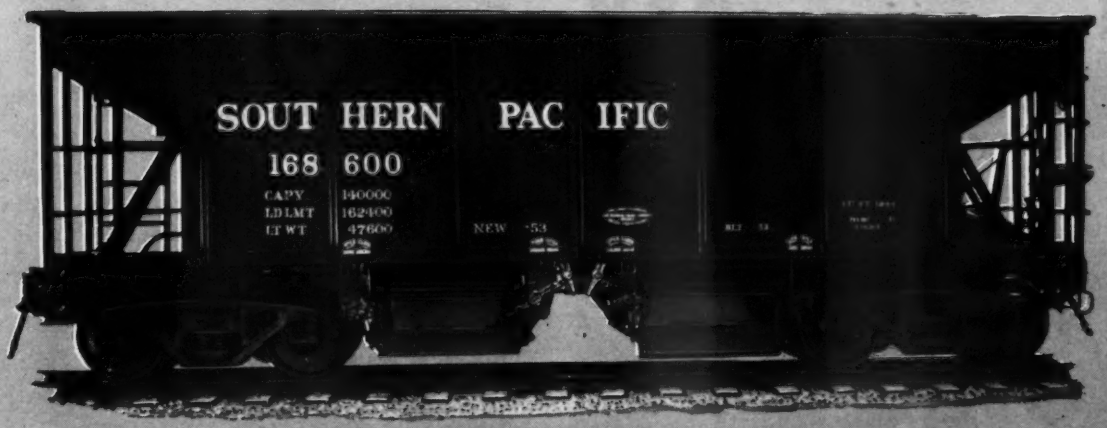
This superior crossbuck is *corrosion resistant*. It won't rot or rust—even when punctured by rifle bullets. *So strong* that it will withstand winds of 100 miles per hour. Excellent base for paint, reflective buttons, or reflective sheeting such as "Scotchlite" Brand Reflective Sheeting.

Your Kaiser Aluminum sales office will be happy to supply you with full information on the Kaiser Aluminum extruded crossbuck. Ask for our new booklet "The Sign Of Modern Times."

Kaiser Aluminum & Chemical Sales, Inc., *General Sales Office,* Palmolive Bldg., Chicago 11, Illinois; *Executive Office,* Kaiser Bldg., Oakland 12, California.

Kaiser Aluminum

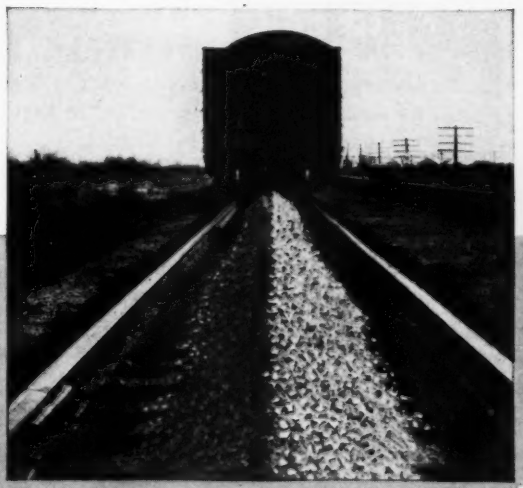
See "THE KAISER ALUMINUM HOUR." Alternate Tuesdays, NBC Network. Consult your local TV listing.

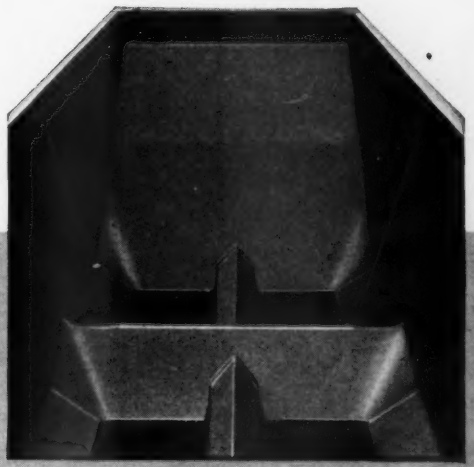


ENTERPRISE

Patented

Ballast Cars





Ballasting with
Center Doors Only

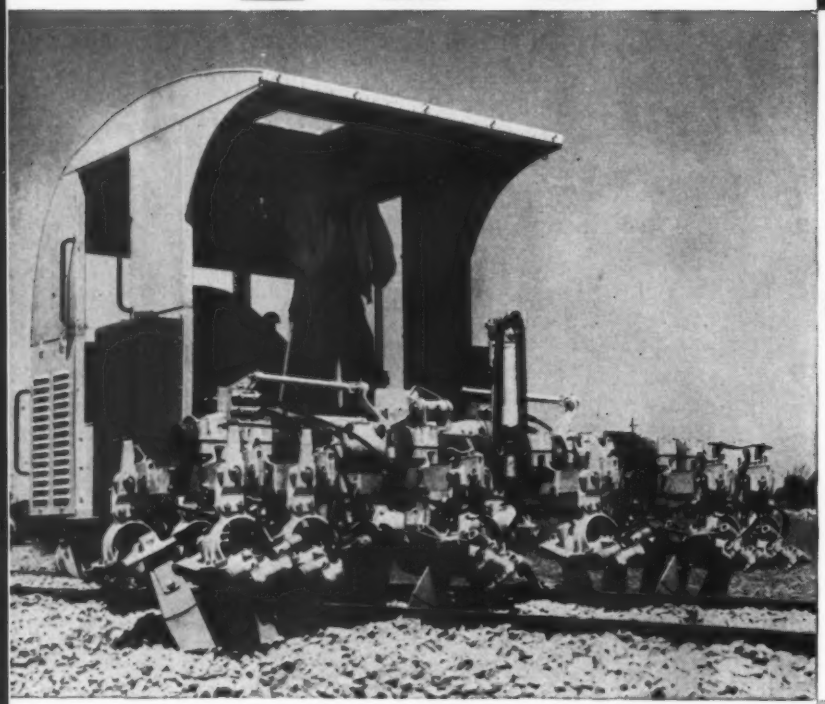
Ballasting with
Side Doors Only

50 YEARS
ENTERPRISE
1905 - 1955

ENTERPRISE RAILWAY EQUIPMENT COMPANY

59 E. Van Buren Street • Chicago 5, Illinois

from GANDY-DANCER to . . .



JACKSON MANUALLY GUIDED T
TAMPERS & POWER PLANTS

Exceedingly efficient and widely used by small gan
in low lifts and smoothing work, cross-overs and sp
the on-track machines can not reach.

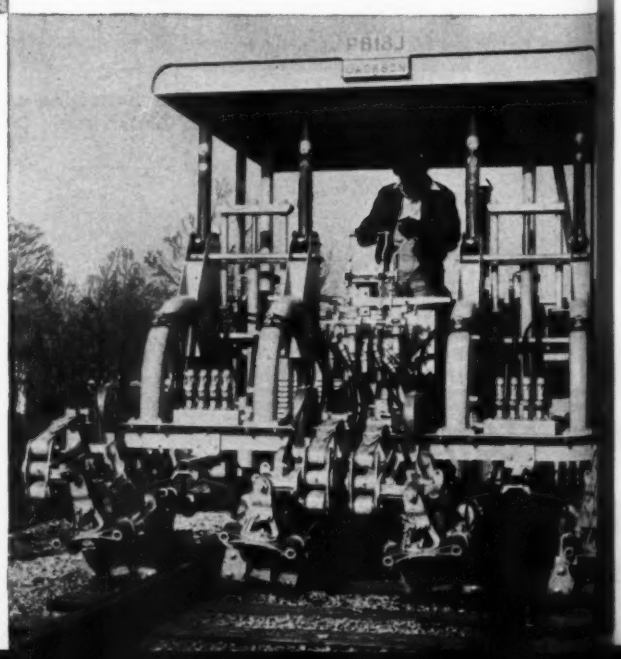
JACKSON MULTIPLE TIE TAMPE

Unsurpassed for putting up track of finest uniform qu
ity in all lifts from the highest to those no lower th
average size of ballast used.

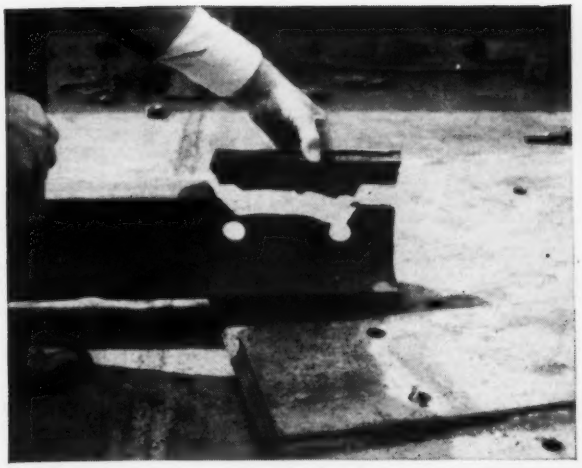
JACKSON TRACK MAINTAINER

For both putting up and maintaining track of fin
quality under the widest range of track lift and ball
conditions this machine has no equal. Invariably
choice of those who investigate thoroughly.

During our more than 35 years of specialization
in the manufacture of tie tamping equipment,
the name JACKSON has consistently been
synonymous with the best, most economical means
of achieving and maintaining track of finest
uniform quality under ALL conditions.
Let us help you to the best possible solution
to your track tamping problems.



JACKSON VIBRATORS, INC.
LUDINGTON, MICHIGAN, U.S.A.



Corrosion fatigue caused this rail end failure. NO-OX-ID prevents these hazards.

Rail base eaten away by brine drippings. NO-OX-ID protective coatings prevent this deterioration.

Steel bridges damaged by rust cost money. NO-OX-ID's long-life protection prevents costly corrosion.

Rusty gauge rods are difficult to adjust. NO-OX-ID stops corrosion...makes adjustment easy for years to come.

NO-OX-ID PROTECTS...NO-OX-ID SAVES

Corrosion takes its toll wherever steel is used. Replacing rust-ruined trackage, signal equipment, bridge and overpass steel members is expensive and unnecessary.

Many leading railroads rely on Dearborn NO-OX-ID to cut down materials and maintenance costs wherever steel is exposed. Consult your Dearborn Field Engineer. His broad railroad experience, plus Dearborn's extensive research and laboratory facilities, can save you important money. It pays to investigate.

Dearborn NO-OX-ID®

AN APPLICATION FOR EVERY RAILROAD NEED

NO-OX-ID is different! It protects both mechanically and chemically.

Write for Dearborn NO-OX-ID Bulletins 3007-3009-A for complete information.

Dearborn Chemical Company
Dept. RTS, Merchandise Mart Plaza,
Chicago 54, Ill.

Gentlemen:

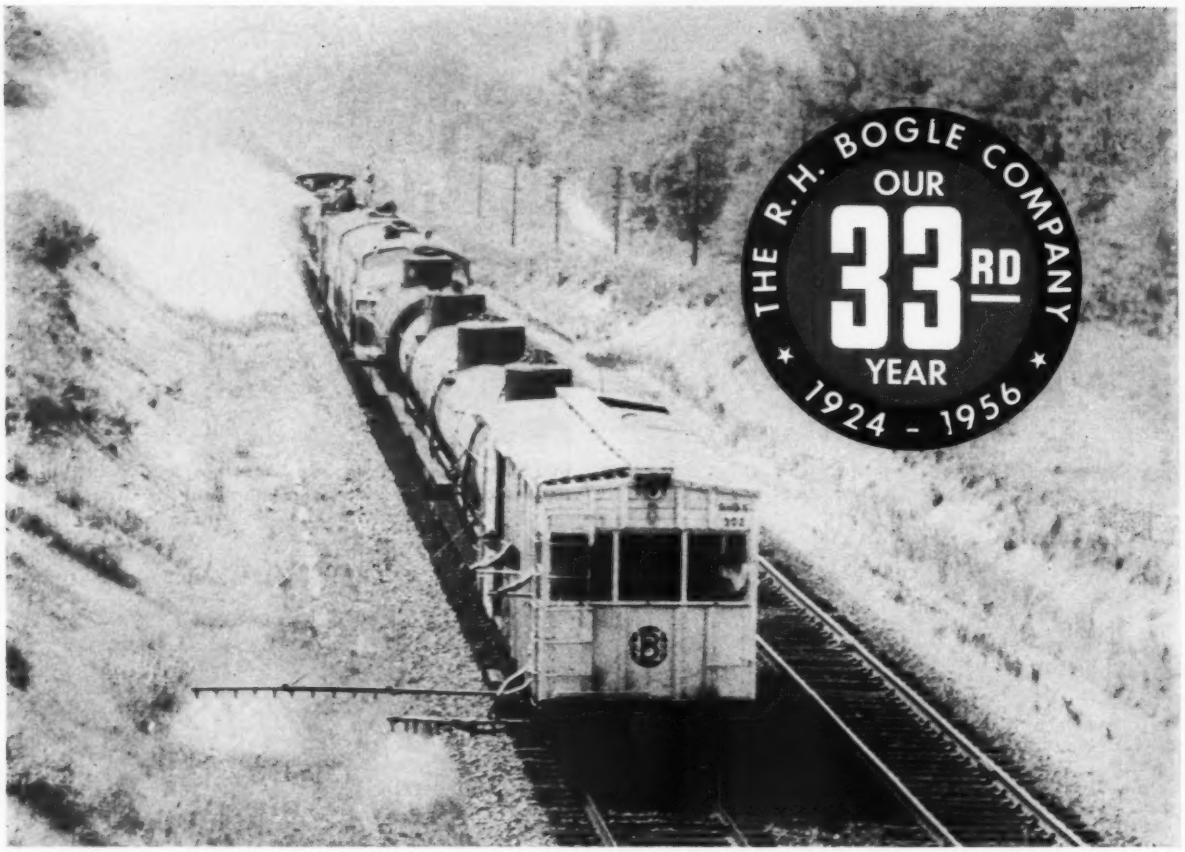
☐ Please send me NO-OX-ID Bulletins 3007 and 3009-A.
☐ Have a Dearborn Field Engineer call.

Name.....*Title*.....

Railroad.....

Address.....

City.....*Zone*.....*State*.....



FOR A THIRD of a CENTURY . . .

We have Cooperated with the Railroads in Achieving *Better* Track and Roadway

The railroads have come a long way in the chemical treatment of weeds and brush—and the Bogle organization has had an important role in this development.

In getting rid of weeds and roadway growth with chemicals—*there is no substitute for experience.* Bogle has a consistent record of successful results because the way has been chartered for us by exhaustive on-track and right of way tests. We know our chemicals and we have the latest in modern spraying equipment to apply them for the best results.

We offer a complete, well-integrated weed and brush control service that meets today's needs at the lowest possible cost per mile.

Visit our Booth—No. 5-N

THE R. H. BOGLE CO.

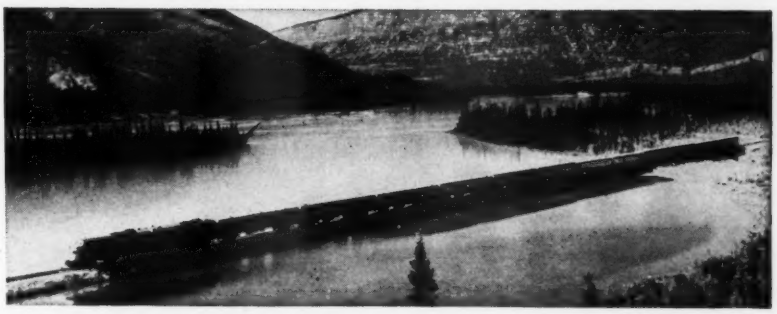
Complete Weed and Brush Killing Control

ALEXANDRIA VA. **MEMPHIS TENN.**

CANADIAN NATIONAL RAILWAYS

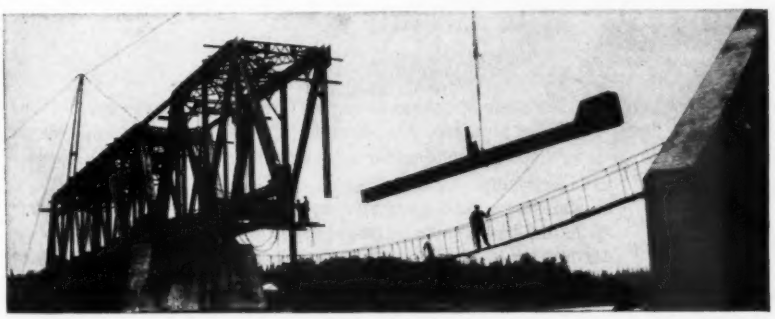
Protects 24,300 miles of track with SPERRY RAIL SERVICE

"The vast industrial growth of Canada places an ever-increasing responsibility on the nation's railroads," comments **A. V.** Johnston, Chief Engineer, Canadian National Railways. "Greater tonnage and high-speed schedules make efficient maintenance of our track and rolling stock increasingly important. I feel that Sperry testing has helped us keep pace, and the cost of this insurance against rail failures is more than justified by the protection provided."



CNR'S SUPER CONTINENTAL, shown passing through Jasper National Park in the Canadian Rockies, operates daily between Montreal-Toronto and Vancouver, with connections with all important centers in North America. The Super Continental is equipped with the most modern cars for comfortable living en route. The transcontinental journey is made without changing trains.

Mr. Johnston continues, "We started testing rail with Sperry Rail Service in 1931. Today 24,300 miles of main track are tested periodically, some heavier traffic routes are tested four times a year.



Cantilever Construction of a through truss across the Bell River on one of the new lines being constructed by the Canadian National Railways to open up the north country. This is tangible evidence of the vital contribution of rail transportation to Canada's economic growth.

Mr. Johnston remarks, "In 1955, over 91% of the defects detected by Sperry were small defects – less than 20% in size. Finding defects at this early and comparatively harmless stage saves many broken rails and potential derailments. Our road, along with six others in Canada, schedules our testing in a pool arrangement to insure for us all the most productive use of the Detector Cars. A trainmaster or assistant superintendent, plus an engineering department representative, accompany the car for efficient handling."

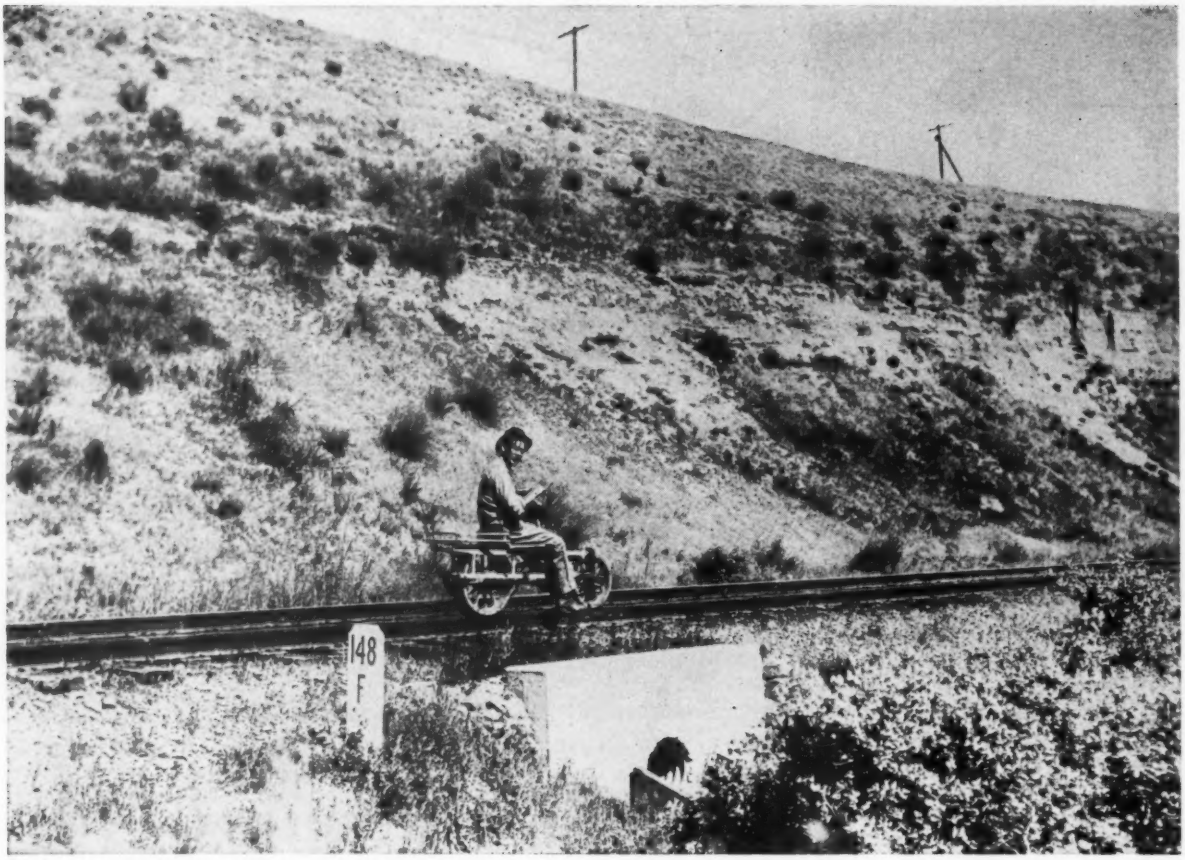
Write or phone Sperry for latest procedures on the testing of rail in track, diesel axles, wheels and similar vital components.

Sperry

FIRST IN RAIL TESTING

SPERRY RAIL SERVICE

Division of Sperry Products, Inc.
Danbury, Conn.
New York Chicago St. Louis



This photo, taken about 1912, shows the Armco Corrugated Metal Pipe installed at Mile Post 148-F.

Armco Pipe Installed 1909 Still Giving Good Service

Away back in 1909, the Southern Pacific Railroad Company installed an 18-inch-diameter Armco Corrugated Metal Pipe as a culvert at Mile Post 148-F near Soledad, California. Today, 47 years later, this same pipe is still giving good service.

MATERIAL DURABILITY—In those years Armco Pipe had only a coating of zinc for protection. Now, railroads can specify a choice of protective coatings to withstand the degree of corrosion and erosion required by the installation.

FLEXIBLE STRENGTH—The strength of Armco Corrugated Metal Drainage Structures is demonstrated by numerous installations under high fills. For example, a western railroad has had an Armco Structure under a 77-foot fill for 29 years. It is in perfect alignment.

Armco Pipe diameters range from 8 inches to 15 feet. And Pipe-Arch structures are supplied in comparative sizes. Wide choice of gages. Write us for data. Armco Drainage & Metal Products, Inc., 4186 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

Recent photo of same Armco Corrugated Metal Pipe. Mile Post has been changed to 148.82.

ARMCO®

ARMCO DRAINAGE STRUCTURES

Look!
No weeds.

Weed Control is no chore...when you use new

EFFECTIVE...ECONOMICAL

UREABOR®

WEED and GRASS KILLER

Applications of UREABOR are almost effortless

NOTHING TO MIX — NO WATER TO HAUL

There's no easier way to end weeds for a season or longer! That's why UREABOR has been such an instantaneous success with all types of industry. You, too, will want the effective and lasting destruction of plant-life offered by this newest addition to our line of nonselective herbicides.

UREABOR is a granular urea-borate combination in dust-free form for fast, easy application at low rates. This chemical destroys weeds and grasses through their root systems. Its residual action, preventing regrowth for long periods, helps hold man-hours for "grassing" to a minimum.

UREABOR has desirable features. It's concentrated, nonflammable, and nonpoisonous when used as directed. Easy to apply—just a man with a special PCB Spreader can be effective anywhere.

Write today for literature!

Dry application—like this—destroys weeds and grass...prevents regrowth for a season, or longer!

Special Spreader now available for fast, easy application...

The PCB Spreader applies UREABOR to best advantage, at prescribed low rates. It holds enough UREABOR to treat 1250 to 2500 sq. ft. without refilling—weighs a mere 6 lbs. Available now for just $10.75 delivered—anywhere in the U.S.A.

AGRICULTURAL SALES DIVISION

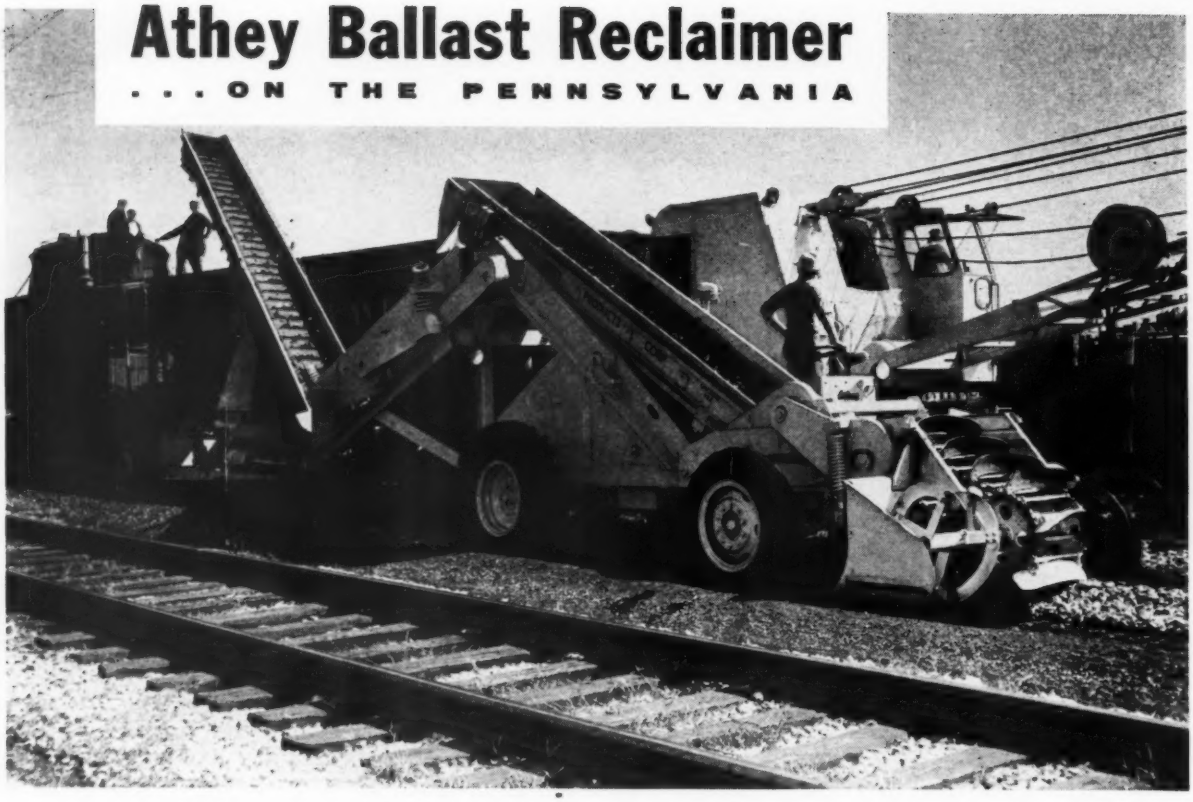
PACIFIC COAST BORAX COMPANY

DIVISION OF UNITED STATES BORAX & CHEMICAL CORPORATION

630 SHATTO PLACE, LOS ANGELES 5, CALIFORNIA

Athey Ballast Reclaimer

. . . ON THE PENNSYLVANIA



Picks up, Cleans and Loads Ballast at rate of two 70-ton cars per hour

The Athey Ballast Reclaimer is the only successful off-track, portable ballast cleaner on the market. Its performance is bringing railroads new savings in time and money on maintenance.

The Pennsylvania Railroad, for example, reports savings of at least $1.00 per ton by reclaiming old ballast with the Athey Ballast Reclaimer.

For removing ballast and cleaning operations, the Athey Track Cleaner proves a time and money-saver on maintenance jobs.

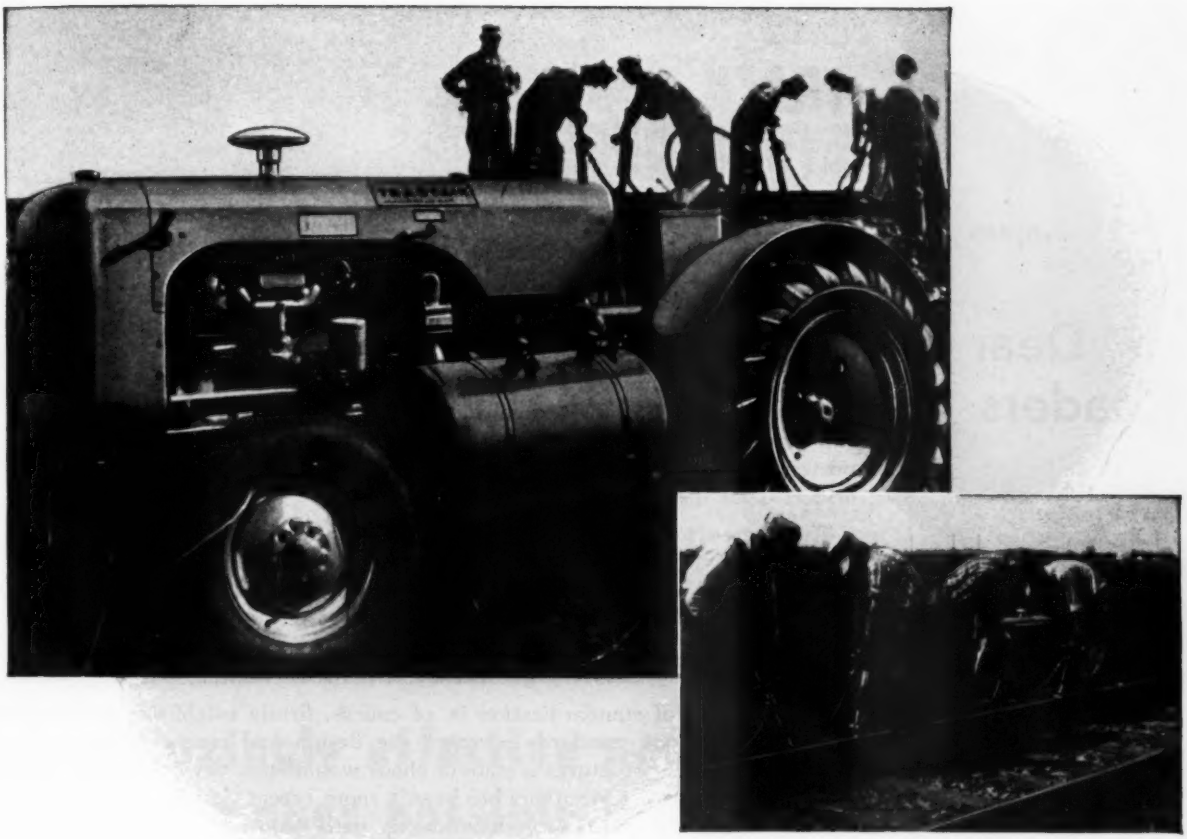
After tracks are removed, the Reclaimer picks up, cleans ballast and loads cars at costs considerably less than that of new ballast. In 6 hours, twelve 70-ton hopper cars were loaded with clean ballast for re-use on Pennsylvania right-of-way.

The equipment picks up the material from the roadbed — conveys it to a shaker screen where dirt and fines are screened out. Cleaned ballast then travels up a conveyor belt into the car. All controls are hydraulic, assuring easy, fast operation. Elevating conveyor swings 17° to right or left of center.

Ask for the services of our special railroad sales engineer to explain the Ballast Reclaimer in more detail. He can show you with facts and figures how it can save you time and money. Write to Athey Products Corporation, Railroad Sales Division, 5631 West 65th Street, Chicago 38, Illinois.

Athey

MONEY-SAVING RAILROAD EQUIPMENT



Get Rid of Slow Orders – in a Hurry

... use the mobility of Le Roi Tractair and the easy holding of Cleveland Tampers, to tamp your bad sections faster

LE Roi's Tractair unit is an off-track compressor-tractor that has good traction and low center of gravity. It readily crosses or straddles heavy-duty rail. It climbs embankments and works on a two-to-one slope with safety. That's why Le Roi Tractair can take air power anywhere, can provide you with a quick, easy way of getting rid of slow orders caused by bad sections of track.

And, since the Tractair unit compressed-air output has been increased from 105 cfm to 125 cfm you can handle four, easy-holding, Cleveland C10T, heavy-blow tie tampers, with air power to spare. The fast, hard-hitting blow, and easy-holding qualities of the Cleveland machine help your section hands do faster, more uniform work.

And Tractair can do many more jobs besides tamping — such as driving spikes, breaking pavement, driving moil points for grouting, powering earth augers, ditching, light grading, weed mowing, stockpiling ballast, cinders, etc., handling off-season work for B&B, Signal, T&T, and Water Service Departments.

Get all the facts on this redesigned Tractair with its increased power. Write our Railroad Sales Department, 327 South LaSalle Street, Chicago 4, Illinois, or to us for our latest bulletin.

T-37

LE ROI *Division of Westinghouse Air Brake Co.*

Milwaukee 1, Wisconsin

PORTABLE AIR COMPRESSORS TRACTAIR STATIONARY AIR COMPRESSORS AIR TOOLS ENGINES

RAILWAY

TRACK and STRUCTURES

Subject:

Standard Gang Organizations

Dear Readers:

"If you want to do us a service," said a track supervisory officer recently, "why don't you write something suggesting that field supervision be given more freedom to make changes in gang organizations set up in the chief's office?" This man was not suggesting that supervisors be given carte blanche in reshuffling these organizations, but he would like to feel free to make more or less minor changes when he sees an opportunity to improve the performance of a gang, that is, without running the risk of being criticized for his initiative.

The degree to which various railroads have standardized on the organization of their track gangs varies widely. Some, perhaps not many, have set up rather rigid standards which are expected to be used without change, except under unusual circumstances. At the other extreme are those roads on which the division forces are allowed to organize their gangs without any but very general directives from above.

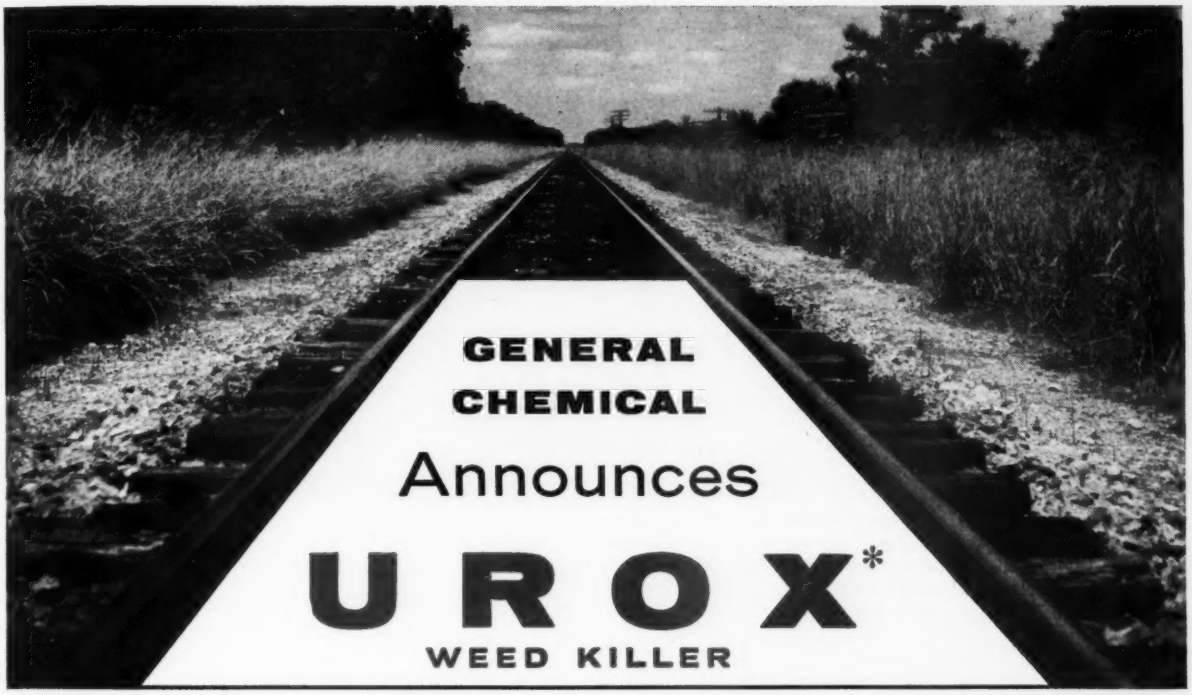
The principle of standardization is, of course, firmly established, and rightly so. Without standards covering the design and construction of tracks and certain structures a state of chaos would soon develop. Standardization of gang organizations has been a more recent development. In the days when track work was done largely with hand labor, a few men more or less in a gang wasn't considered a matter of great importance. But mechanization—and higher wage rates—have made all the difference in the world. To justify the investment in machines they must be used in such a way as to get the most out of them, and an efficient gang organization is one way to achieve this end. Another consideration is that there is actually less flexibility in the organization of a highly mechanized gang than one in which the work is all done by hand.

Because of these considerations the development of standards for gang organizations is a logical step. Such standards are evolved as a result of careful study by men who know their job, and they are not adopted for general use until they have been tried and proven in actual service. It can be expected, therefore, that these standard organizations will bear the most critical analysis.

While granting these points it is necessary to keep two considerations in mind. One is that there are few things that cannot be improved upon, and track gangs are no exception, even those that have been designed after exhaustive study. Who would care to take the position that a particular track gang is so perfectly organized that a competent, practical supervisor would not be able to make suggestions for improvement after observing it in action for weeks or months?

The other consideration has to do with the matter of individual initiative. Almost any reader of this magazine could fill a page if he undertook to make a list of new machines or devices that have originated in the minds of supervisory officers. At least another page could be filled if a list were to be made of organizational improvements that have come out of the same minds.

Many supervisors feel thwarted if they are not at liberty to use their initiative on the job. But the biggest loser where such initiative is denied is not the supervisor—it's the railroad he works for. MHD



An amazingly effective new chemical herbicide, UROX makes possible lower-cost weed control for rights-of-way, switchyards, trestles!

You can save time and money by controlling weeds with UROX Weed Killer because . . .

1. Only one application a year is needed under normal growing conditions! Field tested on a wide range of annual and perennial grasses and broad leafed weeds, UROX has given outstanding control for as long as *10 months!* Under average conditions, just one application will wipe out unwanted vegetation for a full season!

2. Small quantities do the job! UROX gives amazing control, even on areas with heavy top growth. For hard-to-control deep-rooted perennials, only a slightly larger dose is required.

3. Light "booster" doses keep most areas weed-free from season to season! The herbicidal effects of UROX are cumulative. Much smaller quantities will do the job on the second and following seasons.

GENERAL CHEMICAL WEED CONTROL

MAIL COUPON NOW FOR COMPLETE INFORMATION ON AMAZING NEW UROX HERBICIDE

And you get these other important advantages . . .

1. UROX is easy to use! Comes in free-flowing granular form. No expensive spreaders to buy. No water needed. No dilution necessary.

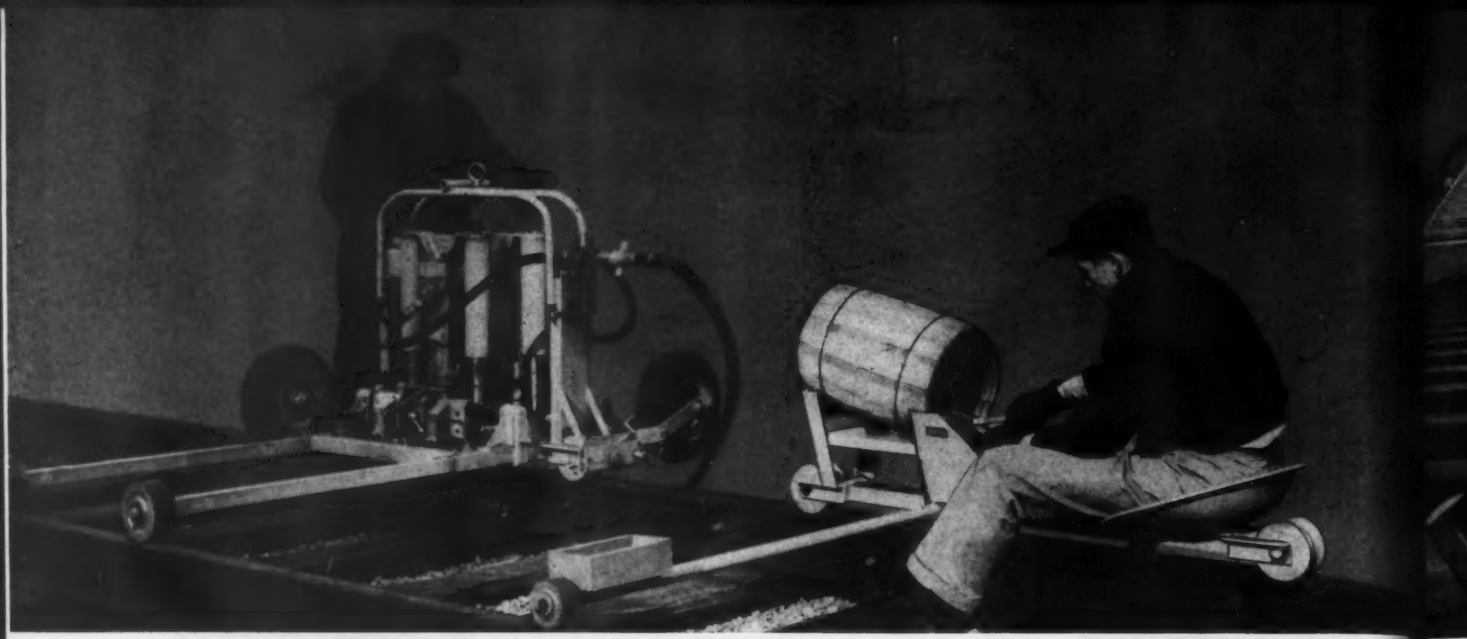
2. UROX is safer! UROX does not add to flammability of vegetation. UROX has low toxicity for humans and animals.

*Trademark of General Chemical Division, Allied Chemical & Dye Corporation

Weed Killer Department
GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

☐ Please send free folder giving complete information on new UROX herbicide.
☐ Please have representative call.

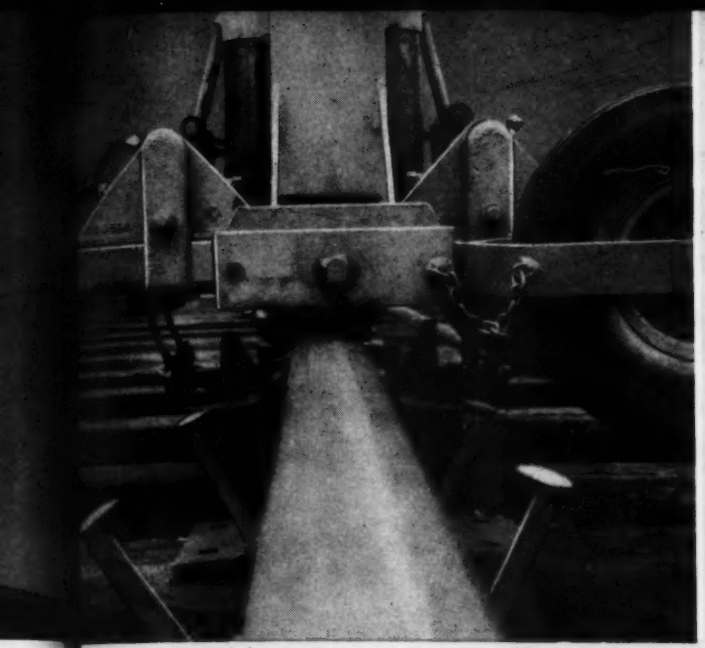
Name_____
Title_____
Company_____
Address_____
RT-9
City_____ Zone___ State_____



A spiking team—one man on a Racor Distributing Carriage places the spikes loosely in the line spike holes. Another man drives two spikes at once by operating the control handle of the DD4. Release of the control handle readies the Dual Driver for the next pair of spikes.

New Racor Dual Drive *cu*

The DD4 in action! All the advantages of a powerful pneumatic hammer, yet one man drives twice as many spikes without relief or fatigue. Costly hand setting of spikes is eliminated.



The spikes are automatically picked up and held vertical for driving by the Dual Driver. The spikes may be leaned either toward or away from the rail as shown here.

rive *cuts line spiking costs!*

Actual experience on many miles of track has *proven* that the Racor Dual Driver DD4 effects substantial reduction in line spiking costs:

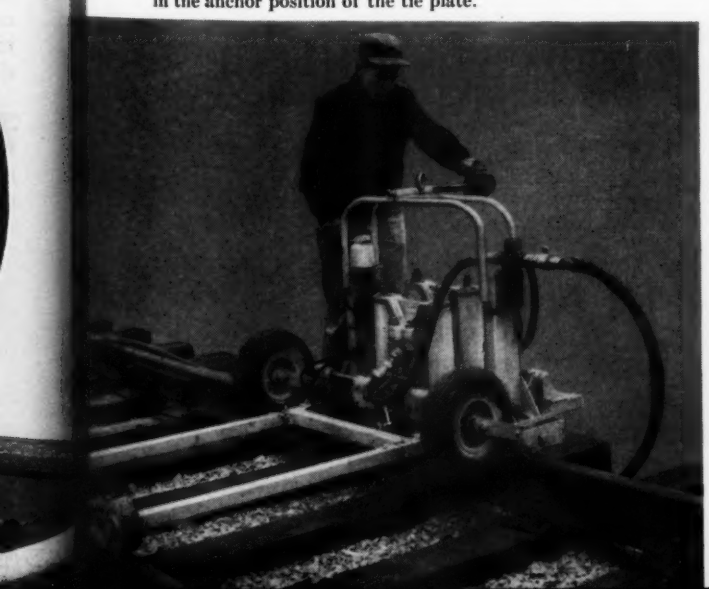
One man can easily drive at least twice as many spikes as any other spike driver. After spikes are distributed to the tie plate holes, the DD4 positions them for driving, drives two spikes at once, and automatically resets for the next pair of spikes.

The DD4 can also drive Racor Studs!

Why not see how this new Racor Dual Driver can best fit into your own maintenance-of-way plans? Your Ramapo representative will be glad to consult with you about your road's specific conditions and requirements.

The Racor Dual Driver is easily removed from track.

Also drives Racor Studs! The Racor Dual Driver can quickly be adapted in the field for driving Racor Studs in the anchor position of the tie plate.



AMERICAN
Brake Shoe
COMPANY

RAMAPO AJAX® DIVISION

CHICAGO 6, ILLINOIS

IN CANADA: DOMINION BRAKE SHOE CO., LTD.

A-8237

No More *Trenching!*
No More *Jacking up Track!*

This WOOLERY
Tie-removing Team Now Eliminates This Slow, Costly Method!

SEE
OUR EXHIBIT
in booth
4-S

Use the WOOLERY TIE-END REMOVER in conjunction with the improved model NU WOOLERY TIE CUTTER! It's the *perfect team* for greater savings on tie renewals—and gives *smoother, safer track, too!*

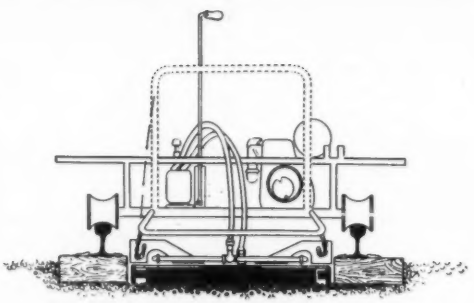
FOR HIGHEST EFFICIENCY, *TWO* TIE CUTTERS should be used with *one* tie end remover

The trend toward heavier rail and double shoulder tie plates has made removing tie-ends increasingly difficult. With the WOOLERY Tie-end Remover, this task can now be done *in less than a minute by one man with no more effort than that required to turn a valve!* See how simply and efficiently this WOOLERY team works—follow the "1-2-3-" steps of tie-removal.

SPECIFICATIONS

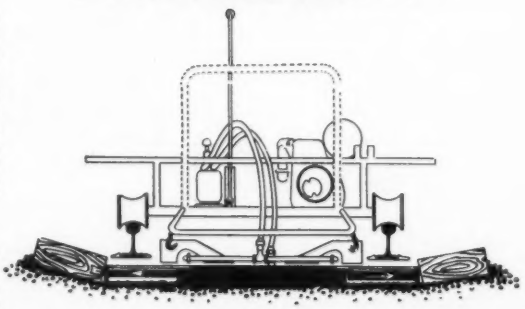
- ENGINE Wisconsin air-cooled 4-6 H.P.
- PUMP 1,500 P.S.I. built-in relief valve, 1 gal. reservoir.
- DRIVE Double V-belt.
- CYLINDER 3" bore, honed finish, double-ended, double-acting. Hardened, ground and chrome plated rams equipped with rod wipers.
- TRACK ROLLERS 6" self-centering, insulated.
- NET WEIGHT 360 pounds.
- CRATED WEIGHT 490 pounds.

➧ After the tie has been cut on both sides by the WOOLERY Tie Cutter, the operator of the Tie-end Remover—(who follows closely behind so that operators can assist each other in removing machines from track)—lifts the center section out with tie tongs.



➧ A double-ended hydraulic cylinder is then lowered into the tie bed.

➧ A simple turn of the valve moves these two pistons outward, *pushing the tie-ends completely clear of the rail—whether working with single or double shoulder tie plates!* The crib is now open—and only the necessary amount of ballast is removed to admit the new tie.

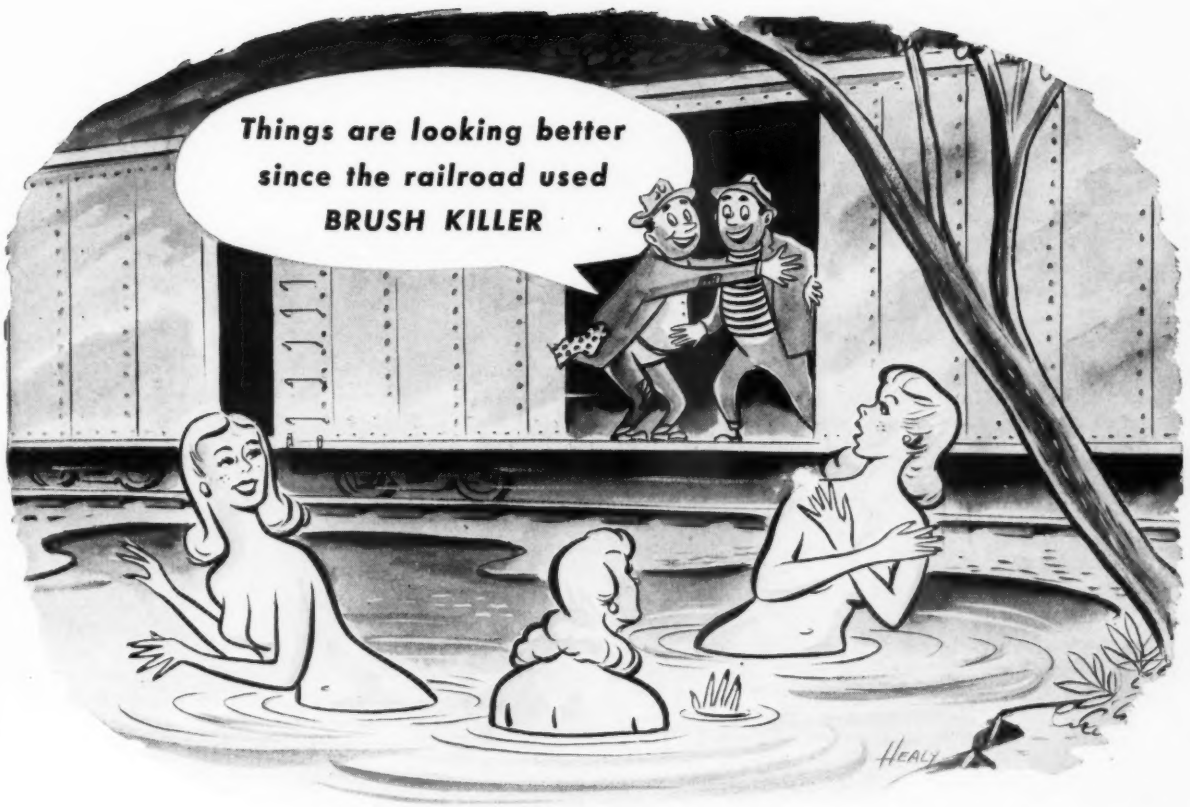


There has been no trenching or jacking up of track—thus line and surface of track are maintained, soft spots and humpy track are eliminated—the new tie rests on a firm bed and little or no tamping is necessary.

ESTABLISHED 1917

WOOLERY MACHINE CO.
MINNEAPOLIS, MINN.

Also manufacturers of Woolery Heavy Duty Weed Burners, Bolt Tighteners, Spike Drivers, Track Tool Transporters, Motor Cars and Joint Oilers.



Chipman Chemical Company weed killers, brush killers and application service are backed by over 40 years of experience in serving railroads. An extensive line of weed, grass and brush killing chemicals is available to meet varying conditions. Included are the following:

Atlacide	Atlas "A" Arsenical
Chlorax	Atlas "D"
Chlorax "40" • Chlorea	Brush Killer
TCA-Chlorax	Telvar W
Methoxone-Chlorax	Borax • Dalapon

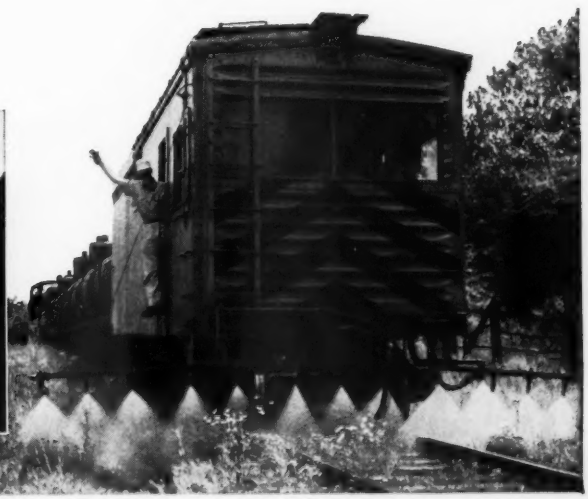
Let us solve *your* weed problems with the *right* chemicals and application service.

CHIPMAN

Chemical Company, Inc.

Bound Brook, New Jersey

16 Strategically Located Chipman Plants



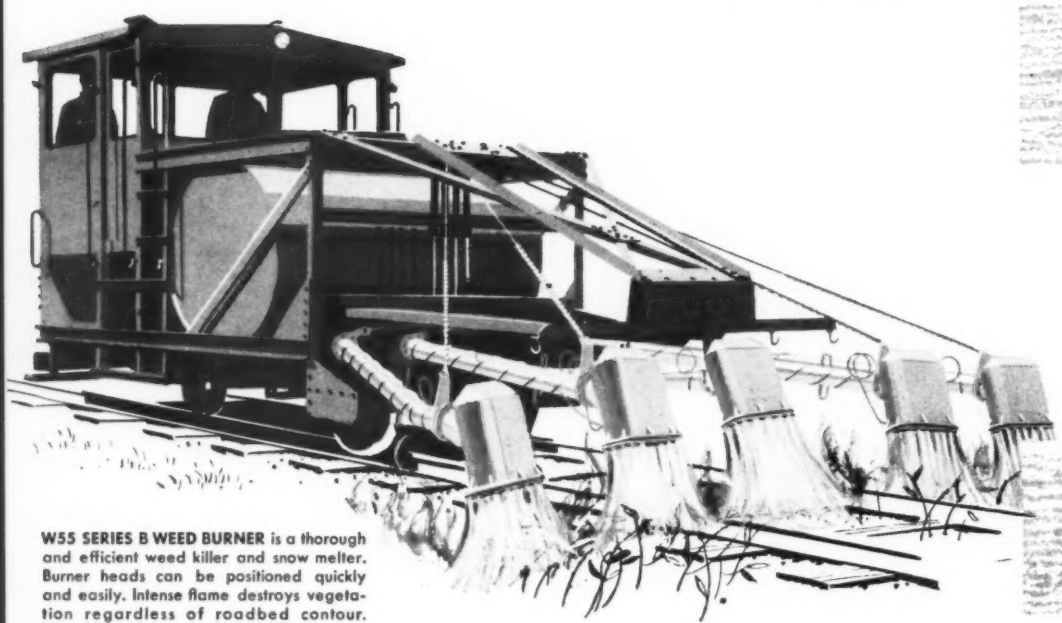
Few problems in railway maintenance require such routine and such consistent attention as that of weed control. And this explains, to a great degree, why experienced personnel everywhere have come to rely on Fairmont weed-control products to assist them in this vital task. For they know that only Fairmont's equipment provides the maximum of reliability and dependability of performance. In basic design, in quality of materials, in craftsmanship and soundness of construction . . . each represents the finest product of its kind available to the industry. And through years of actual performance in the field, each has written an impressive record of trouble-free operation, endurance and longevity. We will be most happy to give you complete information on any of these Fairmont products at any time, and to explain to you their individual specifications and capabilities. You will find, we know, that, when you think of weed control, it *pays* to think of Fairmont!

When you think of

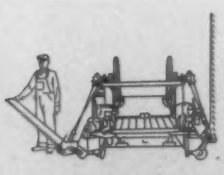
WEED CONTROL

. . . think of

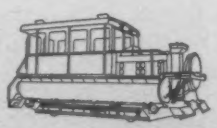
Fairmont



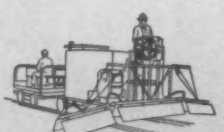
W55 SERIES B WEED BURNER is a thorough and efficient weed killer and snow melter. Burner heads can be positioned quickly and easily. Intense flame destroys vegetation regardless of roadbed contour.



M5 SERIES A WEED MOWER provides fast, efficient cutting at minimum cost. An automatic cutter bar release, heavy-duty sickles and rugged, clutch-equipped engines highlight its performance characteristics.

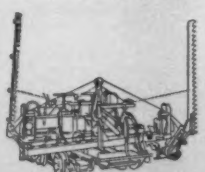


W66 SERIES B WEED SPRAYER is a self-propelled unit fitted with two sets of differently sized nozzles which may be used together or separately. Minimum crew. Features three-speed, two-way drive with fluid coupling.



W78 SERIES A WEED SPRAYER is a trailer type unit which applies liquid weed killers. Light weight, compact, low cost. Two-cylinder engine, 800-gallon tank and 11-nozzle spraying. Efficiently designed and soundly built.

W44 SERIES D WEED BURNER is a tow unit designed for short lines and limited burning. Two outer burning arms are counterbalanced for easy operation. The entire unit can be operated and controlled from within the cab itself.



W24 SERIES A WEED MOWER features cutting bars which are hydraulically operated by an engine-driven pump. Sickles are driven by hydraulic motors. Safety snap-sickle design. Includes power grinder, turntable.

FAIRMONT RAILWAY MOTORS, INC., FAIRMONT, MINNESOTA

MANUFACTURERS OF INSPECTION, SECTION AND GANG CARS, HY-RAIL CARS, MOTOR CAR ENGINES, PUSH CARS AND TRAILERS, WHEELS, AXLES AND BEARINGS, BALLAST MAINTENANCE CARS, DERRICK CARS, OIL SPRAY CARS, GROUTING OUTFITS, TIE RENEWAL EQUIPMENT, RAIL RENEWAL EQUIPMENT, WEED CONTROL EQUIPMENT.

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RAILWAY

TRACK and STRUCTURES

SEPTEMBER, 1956 **Vol. 52, No. 9**

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Editor

R. E. DOVE
Associate Editor

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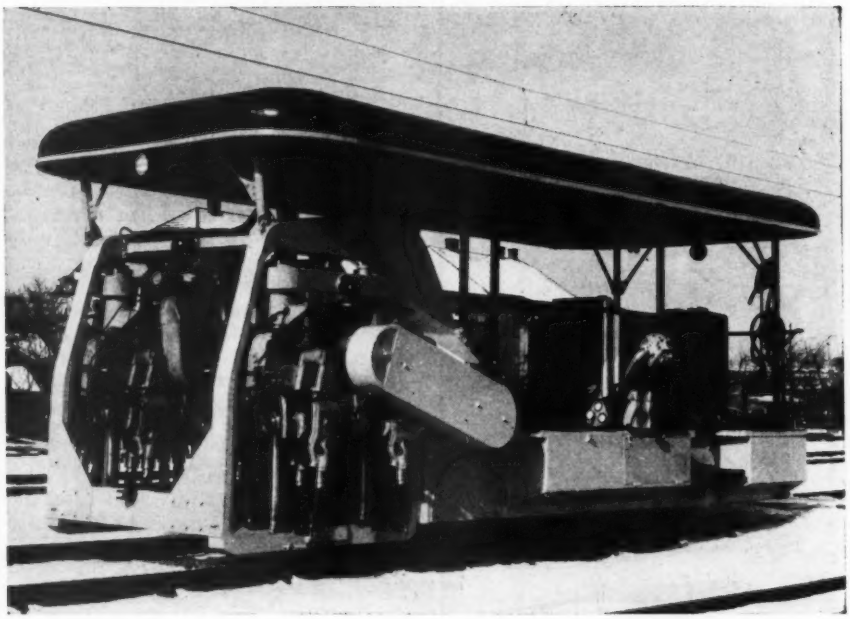
Associate Editor

PLASSER PRESENTS

The New
Type VKR-01

HIGH CAPACITY **HYDRAULIC** TAMPING MACHINE



"One man tamps 1100 feet an hour"

— Canadian
M/W Engineer

This official further reports: *". . . The total time to tamp 11 rails with 24 ties to panel was 22 minutes for one insertion . . . it would appear that the machine was capable of tamping 1100 feet of track (per hour) if given complete freedom to work. To date the track has stood up well . . ."*

The thoroughly-proved Plasser Hydraulic Tamper is designed on the unique principle of the independent working of each tool pair with pre-arrangement of tool pair opening, in connection with hydraulic damping tongs. It guarantees a 100% quality tamping job because:

—It produces uniform ballast compacting—always.

—Tamping pressure at joints and the high rail on curves is automatically increased.

—Adjustment for deep or ordinary tamping may be made while the machine is operating.

—Entire weight of machine rests upon the already-tamped track.

—Good trackability; rubber-mounted axles dampen vibration.

—Diesel-powered compressor; quiet operation.

—One-man operation; exceptionally high performance.

—On or off the track in two minutes; more work time in busy territory.

Get all the facts about this advanced tamping machine that out-performs and out-saves all others.

ERWIN W. KLOSE—Sole Distributor

PLASSER RAILWAY MACHINERY
Licensed Matisa

175 Fifth Ave., New York 10, N.Y.

Marokkanergasse 16 — Vienna III — AUSTRIA — Hafenstrasse 61 — Linz a/D

CONVENTION PROGRAMS

Roadmasters' and Maintenance of Way Association

American Railway Bridge & Building Association

Conrad Hilton Hotel, Chicago, September 18-20, 1956

(All Sessions Chicago Daylight Saving Time)

JOINT SESSION

(Williford Ballroom)

Tuesday, September 18

10:00 a.m.—Invocation
Welcome by presidents of Roadmasters' and B. & B. Associations
Greetings from the American Railway Engineering Association
Greetings from the Track Supply Association
Greetings from the Bridge & Building Supply Association
10:30 a.m.—Address on "The Road Ahead" by J. P. Newell, vice-president, Pennsylvania, Philadelphia, Pa.
11:15 a.m.—Address on People, Precision and Progress by R. J. Stone, vice-president, operations, Frisco, Springfield, Mo.
12:00 noon—Joint announcements
12:15 p.m.—Adjournment for lunch

TUESDAY AFTERNOON

ROADMASTERS' SESSIONS

(Williford Ballroom)

2:00 p.m.—Address by President W. M. S. Dunn
2:15 p.m.—Recognition of past presidents
2:30 p.m.—Report of Committee on Vegetation Control—R. V. Hazer, chairman (assistant engineer, Missouri Pacific, St. Louis, Mo.)
3:10 p.m.—Standing Committee No. 1—Machinery for Maintenanre of Way Work
3:15 p.m.—Report of Committee on Increased Tie and Timber Life Through Use of Tie Pads, Drills, Hold-Down Devices and Other Methods—F. L. Etchison, chairman (chief engineer, Western Maryland, Baltimore, Md.)
4:10 p.m.—Standing Committee No. 2—Track
4:15 p.m.—Adjournment

BRIDGE AND BUILDING SESSIONS

(Beverly Room)

2:00 p.m.—Address by President Joseph A. Jorlett
2:15 p.m.—Recognition of past presidents
2:30 p.m.—Report of Committee on Moving the B&B and Water Service Gang Over the Highway—J. L. Perrier, chairman (division engineer, Chicago & North Western, Chicago)
3:10 p.m.—Address on Why We Organized a Composite Water Service—B&B Gang by P. J. Calza, engineer water service, Rock Island, Chicago
3:40 p.m.—Report of Committee on The Slow Order and Bridge Maintenance and Renewals—T. M. von Sprecken, chairman (assistant to chief engineer, Southern, Washington, D.C.)

WEDNESDAY MORNING

September 19

9:30 a.m.—Report of Committee on Organization of Track Forces for Maintenance of Large Yards and Terminals—F. L. Horn, chairman (engineer of track, Terminal Railroad Association of St. Louis, St. Louis, Mo.)
10:15 a.m.—Address on What Good Maintenance of Way Forces Mean to the Operating Department by R. E. Johnson, vice-president operations, Chicago, Rock Island & Pacific, Chicago
10:50 a.m.—Standing Committee No. 3—Roadway
11:00 a.m.—Report of Committee on Tie and Timber Distribution, Installation, Maintenance and Renewal—C. L. Heimbach, chairman (assistant professor railroad engineering, Univ. of Mich., Ann Arbor, Mich.)
12:00 noon—Adjournment for lunch

9:30 a.m.—Report of Committee on Advancements in Protective Coating Systems for Steel Railway Structures—W. L. Short, chairman (bridge inspector, Missouri Pacific, St. Louis, Mo.)
10:15 a.m.—Address on Painting of Railway Bridges and Buildings by Dr. Joseph A. Bigos, director of research, Steel Structures Painting Council, Pittsburgh, Pa.
11:00 a.m.—Report of Committee on Prefabricated Buildings Versus Other Types of Construction—H. A. Matthews, chairman (general foreman bridges & buildings & water service, Frisco, Amory, Miss.)
12:00 noon—Adjournment for lunch

WEDNESDAY AFTERNOON

Afternoon sessions of both associations adjourned to permit members to visit the Coliseum at 1513 South Wabash to inspect the exhibits of the Track Supply Association and the Bridge and Building Supply Association.

WEDNESDAY EVENING

(Grand Ballroom—Informal)

6:30 p.m.—Joint annual banquet of the Roadmasters' and Bridge & Building Associations—with the supply associations.

THURSDAY MORNING

September 20

9:30 a.m.—Report of Committee on Off-Track Equipment—F. N. Beighley, chairman (roadway engineer, St. Louis-San Francisco, Springfield, Mo.)
10:00 a.m.—Panel discussion on Trends in Track-Force Organizations
10:45 a.m.—Report on Committee on Economies of "Cycle" Method of Track Maintenance—G. D. Mayor, chairman division engineer, Chesapeake & Ohio, Huntington, W. Va.
11:15 a.m.—Business Session
Election of officers
11:45 a.m.—Adjournment

9:30 a.m.—Report of Committee on Coach Watering Facilities Must Be Sanitary—C. B. Foster, chairman (bridge and building supervisor, Southern Greensboro, N. C.)
10:15 a.m.—Report of Committee on the Supervisor—His Records, Accounts and Cost Information—R. H. Miller, chairman (principal assistant engineer, Bangor & Aroostook, Houlton, Me.)
11:00 a.m.—Business Session
Election of Officers
11:45 a.m.—Adjournment

THURSDAY AFTERNOON

(Beverly Room)

1:30 to 5:00 p.m.—Post-convention moving picture theatre for members of both associations. Will consist mostly of railroad-produced films dealing with subjects of particular interest to track and bridge & building men. Wives invited.

...Plus a record exhibit of manufacturers' products →

Pictorial Preview of What's New

Here Are the Exhibitors.....and here are some of the new products they

SPOT TAMPER combines jack and four independent tamping heads which may be operated in pairs, or singly, or all four at the same time. May be used as spot tamper or as production tamper in reconditioning gangs. *Kershaw Manufacturing Company.*

BOLTING MACHINE for removing or tightening nuts on 4 or 6 joint bolts at same time. Head has six air wrenches operated by master lever; individual controls too. *Railway Maintenance Corp.*

Achuff Railway Supply Company
The Aldon Company
Allied Chemical & Dye Corp., General Chemical Division
Allis Chalmers Manufacturing Company
American Brake Shoe Company, Ramapo Ajax Division
American Chemical Paint Company
American Hoist & Derrick Co.
American Railroad Curvelining Corporation
Armco Steel Corporation
Austin-Western Works, Construction Equipment Division, Baldwin-Lima-Hamilton Corporation
Barber-Greene Company
Barco Manufacturing Company
Barthel & Associates
Bernuth, Lembcke Co., Inc.
Binks Manufacturing Co.
Bird & Son, Inc.
R. H. Bogle Company
Briggs & Stratton Corp.
The Philip Carey Manufacturing Company
Caterpillar Tractor Company
Chicago Pneumatic Tool Company
Chipman Chemical Company, Inc.
Clementina, Ltd.
Continental Motors Corporation
Cullen-Freistedt Company
Dearborn Chemical Company
Deckert Corporation
The Dow Chemical Company
E. I. duPont deNemours & Co., Inc.
Eaton Manufacturing Company, Reliance Division
Electric Tamper & Equipment Co.
Enterprise Railway Equipment Company
Fabreeka Products Company
Fairbanks, Morse & Co.
Fairmont Railway Motors, Inc.
The Foundation Equipment Corporation
Gary Slag Corporation
The Gorman-Rupp Company
Gravely Tractors, Inc.
Gray Company, Inc.
The Brice Hayes Company
Hayes Track Appliance Company
Hubbard & Co.
Illinois Bell Telephone Company
Industrial Brownhoist Corporation
Ingersoll-Rand Company
International Harvester Company
Jackson Vibrators, Inc.
Johns-Manville Sales Corporation
O. F. Jordan Company
Kalamazoo Manufacturing Company
Kershaw Manufacturing Company
Koehring Company
Kohler Company
LeRoi Division, Westinghouse Air Brake Co.
Le Tourneau-Westinghouse Company
Link-Belt Speeder Corporation
Linde Air Products Company, Division of Union Carbide & Carbon Corp.
Maintenance Equipment Company
Mall Tool, Inc., Division of Remington Arms, Inc.
Massey Concrete Products Company
The Master Builders Company
Matisa Equipment Corporation
Mid-West Forging & Mfg. Co.
Minnesota Mining & Mfg. Co.
Modern Railroads
Mon-O-Coach, Inc.
Morrison Railway Supply Corporation
Motorola Communications & Electronics, Inc.
National Aluminate Corporation
National Blue Print Company
National Lock Washer Company
The Nolan Company
Nordberg Manufacturing Company
Northwestern Motor Company
D. W. Onan & Sons, Inc.
Osmose Wood Preserving Co. of America, Inc.
The P. & M. Co.
Pacific Coast Borax Company
Permamix Corporation
Pettibone Mulliken Corporation
The Pocket List of Railroad Officials
Pullman-Standard Car Manufacturing Co.

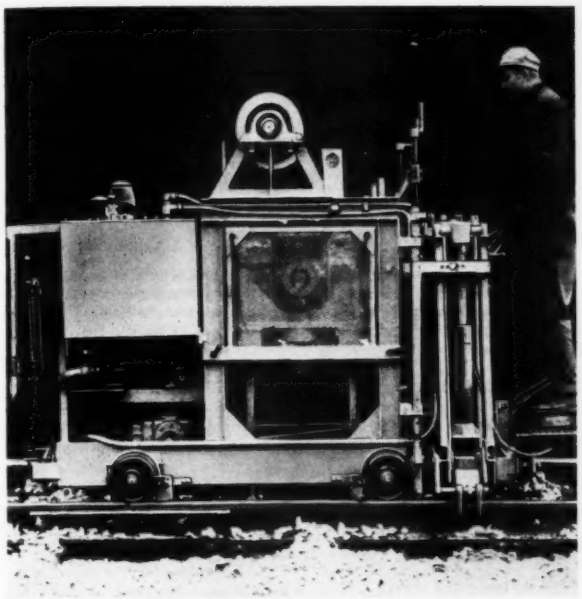
at the Exhibit

will have on display

WHO: Member companies of Track Supply Association and Bridge & Building Supply Association.

WHERE: Coliseum, 1513 South Wabash Avenue, Chicago. (See map on page 61)

WHEN: Sept. 17-20. Opens 9 am. Closes 5 pm Mon. and Tues., 4 pm Wed., 12 noon Thurs.



TAMPING POWER JACK for raising track and tamping ties to hold raise. Has one tamping head which carries four tamping bars, set in pairs inside of each rail. Tamping head raised and lowered hydraulically. *Nordberg Manufacturing Company*

INSPECTION MOTOR CAR consisting of Pontiac station wagon equipped with flanged guide wheels of load-bearing type. Raising guide wheels allows unit to operate on highways in conventional manner. *Fairmont Railway Motors, Inc.*

FRONT-END LOADER for crawler tractors. Has 1-cu yd bucket with 40-deg tip-back action to allow operator to obtain capacity load. Features unit-frame construction for maximum stress resistance. *Caterpillar Tractor Co.*

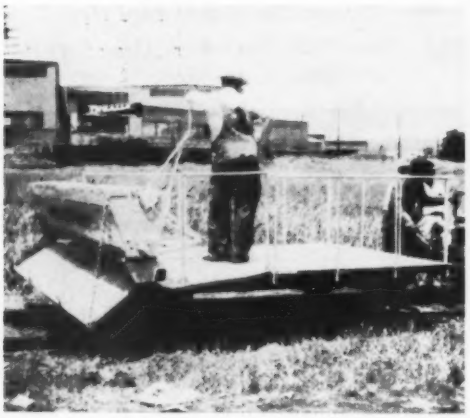
The Q&C Co.
Racine Hydraulics & Machinery, Inc.
The Rail Joint Company, Inc.
Railroad Products Company
Railroad Rubber Products, Inc.
The Rails Company
The Ridge Tool Company
Railway Maintenance Corporation
Railway Purchases and Stores
Railway Track & Structures—Railway Age
Railway Track-work Company
Reade Manufacturing Company, Inc.
Rust-Oleum Corporation
Schramm, Inc.
Spaulding Fibre Company, Inc.
Sperry Rail Service
Spray Starting Fluid Company
Teleweld, Inc.
Templeton, Kenly & Co.
Timber Engineering Company
True Temper Corporation
Warner & Swasey Co.
Warren Tool Corporation
The Wellman Engineering Company
Western Railroad Supply Company
White Manufacturing Company
Wisconsin Motor Corporation
Woodings-Verona Tool Works
Woolery Machine Company
Young & Greenawalt Co.

Occupancy of 276 booths by 112 companies makes this a record exhibit for these associations

Wm. A. Maxwell
President
The Track Supply Association

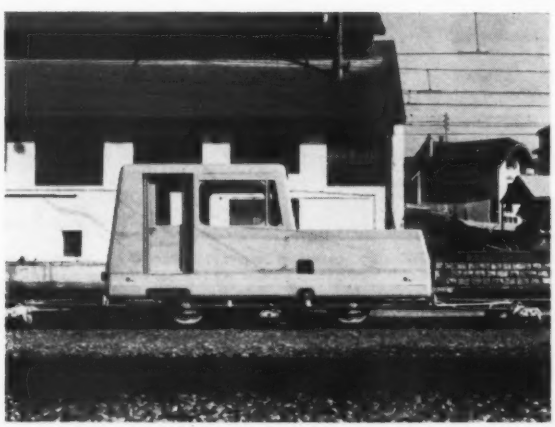
H. R. Deubel
President
Bridge and Building Supply Association

Exhibit | *Preview*



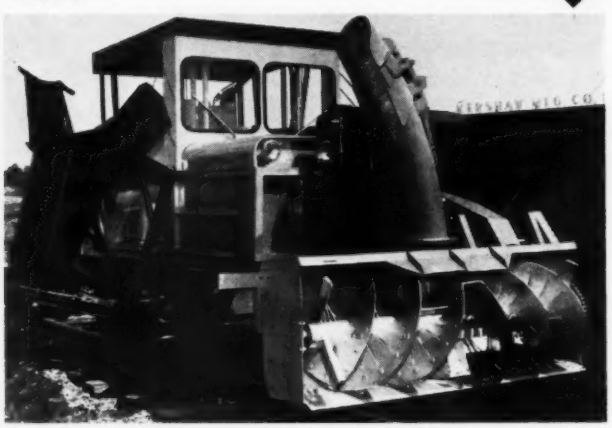
TRACK-MOUNTED spreader for application of granular weed killing chemicals on tracks in yards and on main line. Unit is loaned to railroads for trial application of company's chemicals. *Pacific Coast Borax Company*

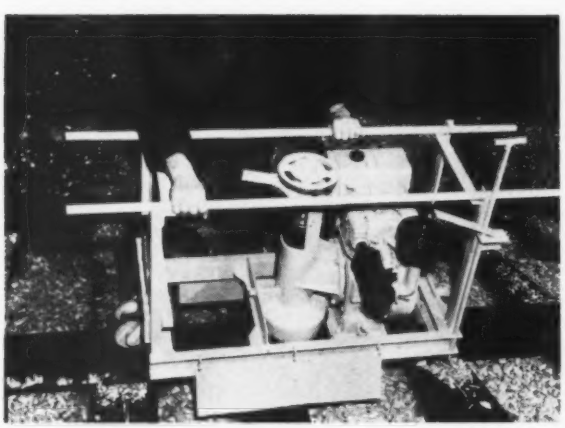
CARRYABLE SPREADER for granular weed control chemicals. Covers a swath about 6 ft wide. Application rates as low as 1/4 to 1/2 lb are said to be possible. Calibrated for adjustable rates of application. Unit weighs 6 lbs and will hold about 25 lbs of chemical. Shoulder strap leaves hands free. *Pacific Coast Borax Company*



TRACK INSPECTION CAR for measuring and recording of track conditions, and the detection and locating of track defects. Furnishes graph of high and low spots in both rails, superelevation and midordinates of curves, irregularity of cross-level, and gage. *Matisa Equipment Corp.*

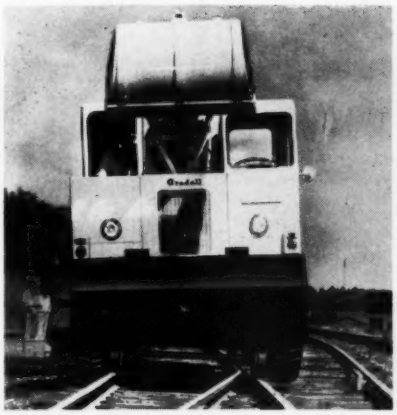
ROTARY SNOW PLOW attachment for ballast regulator. Attachment is mounted on front of regulator to remove snow from track. Rotary device breaks up and feeds snow to blower which is said to discharge it a minimum of 40 ft from track. *Kershaw Manufacturing Company.*



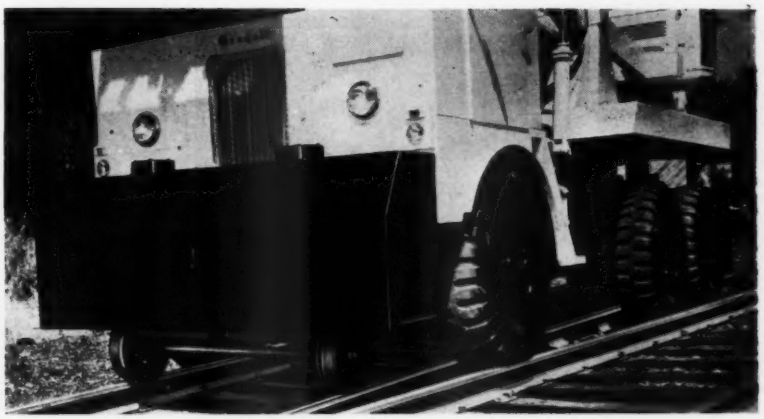


SURFACE GRINDER for rail. Mounted on two double-flanged rollers which, with the frame, form a built-in straight edge. Cup wheel 8 in in diameter is directly driven by an 8.4 hp air-cooled engine through bevel gears enclosed in cast aluminum housing. *Nordberg Manufacturing Company*

UTILITY WHEEL TRACTOR which, in this view, is operating a mowing blade. This is a 42.8-hp rubber-tired unit. In addition to the hydraulic weed mower the tractor may be fitted with a front-end loader and a rear blade for grading and shaping roadways and slopes. *International Harvester Co.*

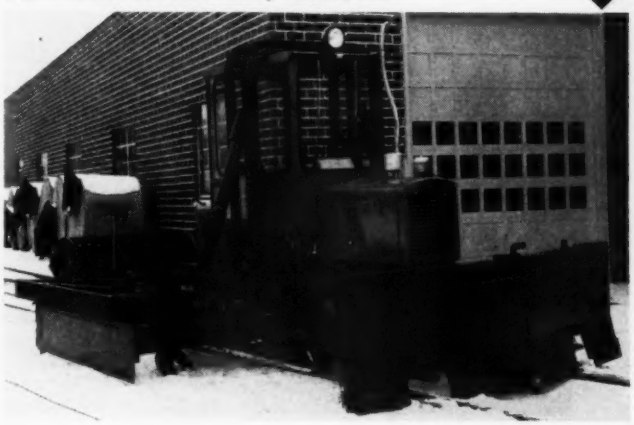


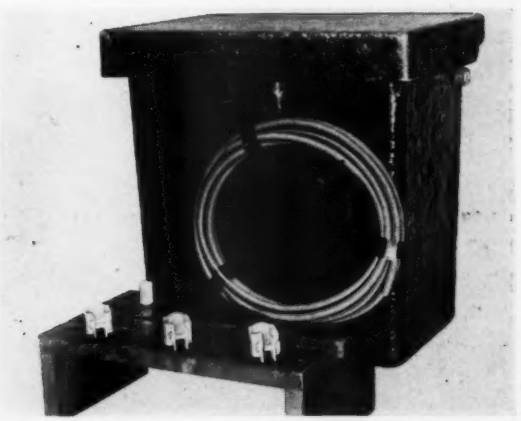
FLANGED GUIDE WHEELS as optional feature for one-man operation of Railroad Gradall. Use of guide wheels is said to permit operator to devote full time to operation of the machine. Air cylinders . . .



. . . **KEEP GUIDE WHEELS** on the rails and compensate automatically as the rubber tires ride up over crossings, frogs and switches. Front guide wheels carry 100 per cent of the front axle weight, lifting the rubber tires free of the ground. Rear guide wheels carry 40 per cent of the weight, leaving 60 per cent of weight on tires for traction. *The Warner & Swasey Co.*

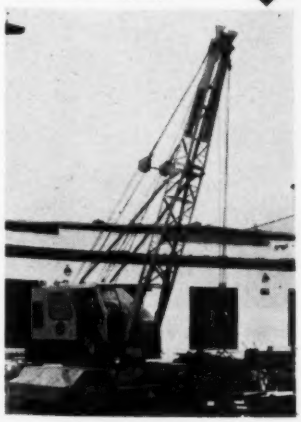
MULTI-PURPOSE ballast maintenance car which can be equipped with ballast plow, ballast equalizing boxes, scarifiers, discs and track broom. Attachments are raised and lowered, and adjusted, hydraulically. Machine has 6-cylinder engine, clutch, torque converter, and three-speed transmission. *Fairmont Railway Motors, Inc.*

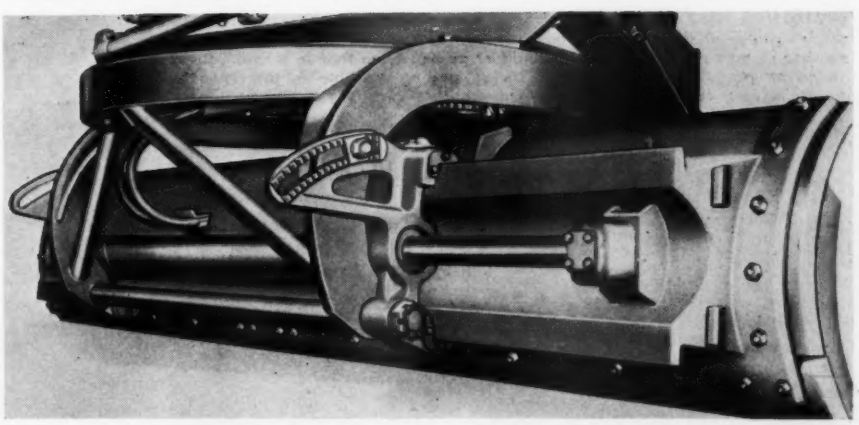




BATTERY HOUSINGS of glass-fiber reinforced plastic. For use with air-depolarized cells in electric switch lighting. Designed to be partially buried in ballast or ground. Each piece has two-conductor cord, grip and cable clamps, battery platform. *Western Railroad Supply Co.*

RUBBER-TIRED CRANE with 15-ton lift capacity, ½-cu yd dipper capacity and a top travel speed of 21 mph. One-man operated. *Koehring Company.*





HYDRAULIC MOLDBOARD offsetting attachment for motor graders. Said to be especially useful to the operator who must frequently use extreme blade positions necessary for operations on low, flat slopes, shoulders or high banks. Before installation motor grader must be equipped with standard Caterpillar steering booster to supply necessary hydraulic pressure. Hydraulic cylinder allows 27 in travel to right, 21 in to left. *Caterpillar Tractor Co.*

Exhibit | *Preview*

TIE-UNLOADING MACHINE designed to unload ties from special gondola cars as it moves through them. Machine moves into car on rails until its front end is against ties which are loaded at right angles on another pair of rails at a slightly higher elevation. Ties are . . .

. . . **EJECTED** from car by a "finger" fastened to a horizontal chain that moves around sprockets at each end of machine. One end of chain is visible in this view. By varying engine speed ties can be placed close to car or five or six feet away. *Railway Maintenance Corp.*

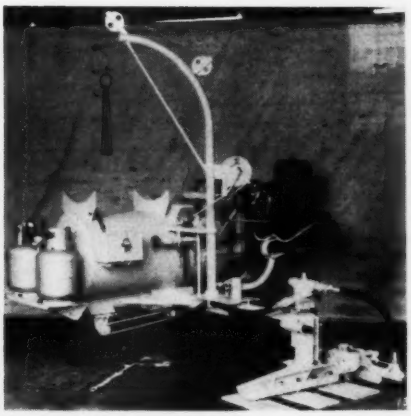
CRIBBER-ADZER which, operated by one man, cribs ballast from between the ties and adzes ties in one operation. Machine is equipped with cribbing brush, three adzer heads and a device for applying creosote to the adzed surfaces. *Kershaw Manufacturing Co.*

DEAD HEAD DETECTOR for operation ahead of tie adzers to locate "dead heads" or broken, hidden spikes in ties. Detector operates magnetically. Machine is fitted with small compressor and air hammer for driving down dead heads. *Kershaw Manufacturing Co.*

PROPULSION UNIT for Dun-Rite gaging machine and pregager. Unit has a single, power-driven crawler which runs on top of the ties. It reduces the number of men required in this method of gaging from five to three. Can be added as propulsion unit to any existing gaging machine of this type by merely adding connecting hitches. *Nordberg Manufacturing Company.*

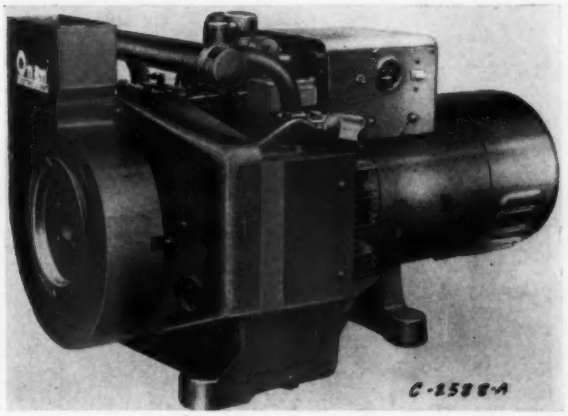
COMBINATION machine incorporating hydraulic power jack and tie nipper, electric tie tampers and automatic track leveling device. Has 60-hp engine, 7.5-kw, 110-volt generator and Vickers hydraulic pump. *Kalamazoo Manufacturing Co.*

RAIL RE-LAYER attachment for crawler tractors, which lays rail with only one man and a helper. Hydraulic ram on the machine picks up the rail from beside the track and lays it to gage. Not necessary to have men at ends of rail for guiding it into position. Machine is also equipped with crane boom for setting other equipment on and off track. *Kershaw Manufacturing Company.*



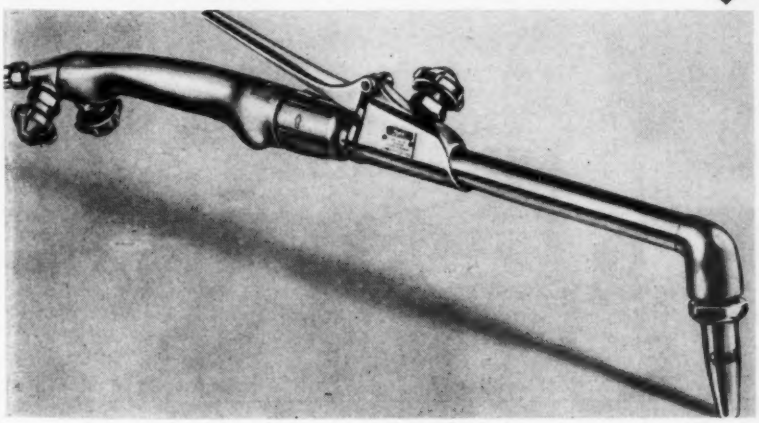
APPLICATOR for applying a plastic material to newly adzed tie surfaces when relaying rail. Has propane gas heater for keeping material in liquid state in the tank. *Fairmont Railway Motors, Inc.*

SKID-SHOVEL for mounting on crawler tractor, which can operate also as a "bullclam," bulldozer or clamshell. Photo shows machine being used for moving concrete rubbish. On same job it was also used for transporting dirt, moving rolls of wire, towing wheeled equipment. *International Harvester Company.*



AIR-COOLING SYSTEM for electric generating plants. System provides the plant with a specially designed centrifugal blower that pulls cooling air through the generator and over the heated engine parts—then expels it through a duct to the outside. *D. W. Onan & Sons, Inc.*

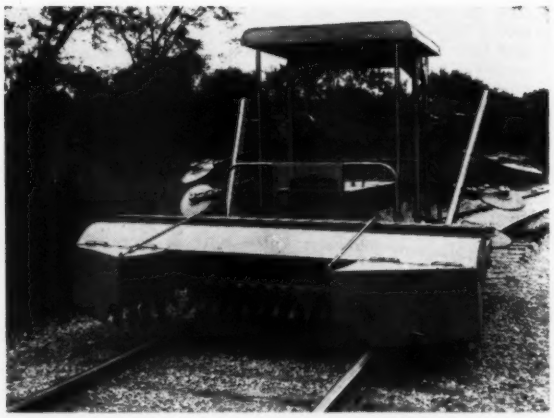
CUTTING ATTACHMENT for use with new Oxweld welding blowpipe. Attachment connects to blowpipe in place of a welding head. Relatively large volume of oxygen in the cutting tube is said to act as a cushion for the initial surge of cutting oxygen, eliminating kickback and keeping the blowpipe steady at the beginning of the cut. *Linde Air Products Company.*



FLUID-HANDLING pump, shown here applying paint to end post of a truss. Has regulator for governing flow of air to pump, and surge control, both mounted on baked enamel cover. *Binks Manufacturing Co.*

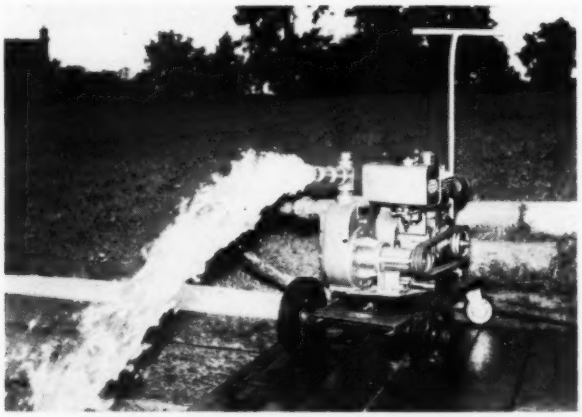
Exhibit | Preview

BALLAST CLEANER for spot cleaning of ballast without the use of work trains. The conveyors pick up the old ballast from the track shoulder and deposit it on sifting screens. The cleaned ballast is then returned to either the center or the shoulder of the track. *Kershaw Manufacturing Company.*



TRACK SWEEPER can be used for dressing the berm, sweeping off ties and for placing excess shoulder ballast between the rails prior to surfacing. After tamping operations have been concluded, machine can be used to clean excess ballast off ties. *Kalamazoo Manufacturing Company.*

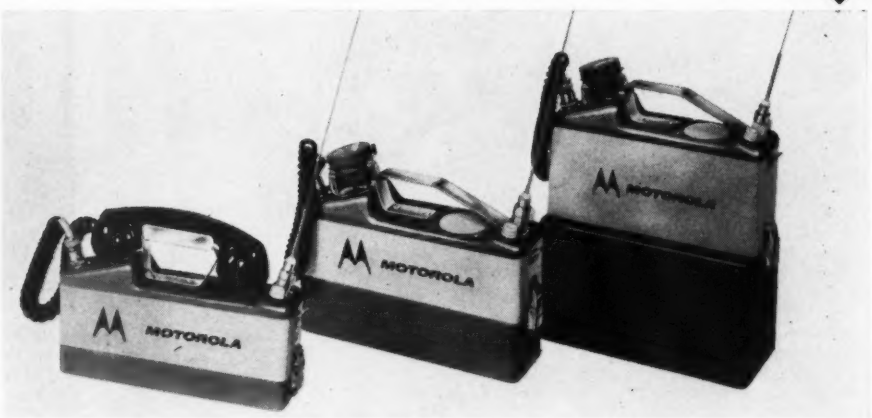
DITCHER is self-propelled—can be driven from job to job. Designed for smaller size ditches, rubber-tired unit digs under pavement with cutting chain speeds as high as 40 fpm. Travels at 240 fpm; can be loaded onto light truck for long hauls. *Barber-Greene Company.*



VERSATILE, engine-driven unit can be used as generator, pump, compressor or sprayer. Basic unit is three-wheeled chassis with steering handle, 2½ or 6-hp gasoline engine. Attachments include tank with compressor for weed and other spraying. *Railroad Products Company.*

DIESEL PILE HAMMER weighs about half as much as steam hammer. Made in Germany, it will be exhibited in U.S. for first time. *Foundation Equipment Corporation.*

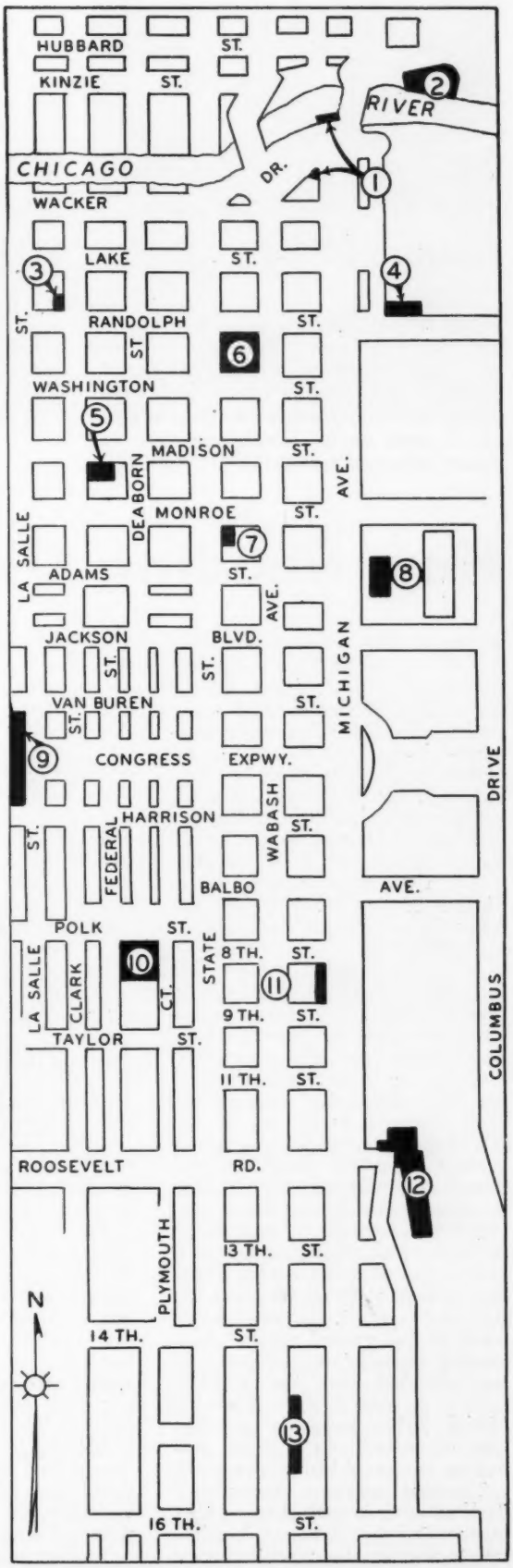
PORTABLE COMMUNICATIONS can be had with a new line of two-way radiophones. Long-life power packs and transistorized circuitry are combined in the units, the smallest of which weighs 7 lbs 9 oz complete. Dry cell, wet cell and commercial 117-volt power packs are available for each model. Wet cell type power pack permits mobile operation from car battery. A wide variety of accessories is available. *Motorola Communications & Electronics, Inc.*



MOBILE COMPRESSOR delivers 125 cfm at 100 psi. Two-stage unit is of the rotary type, features fitted-step construction of compressor housings to assure alinement of parts. Also incorporates spherical roller bearings to keep rotors centered. *Chicago Pneumatic Tool Company.*

TWO-WHEEL CRIBBER is utilized for skeletonizing track and stripping tie heads and centers in a single operation. The machine is self-propelled and operated by one man. The mechanism is completely hydraulically controlled. *Kershaw Manufacturing Company.*

POINTS OF INTEREST in Chicago are shown on this map. Ladies planning to take the lake cruise Wednesday afternoon should, if traveling by taxi, direct the driver to the "London House" restaurant (the lower location at No. 1) then proceed across Wacker Drive to the boat dock. Other points of interest are: (2) Tribune Tower; (3) Hotel Sherman; (4) Prudential building; (5) Morrison hotel; (6) Marshall Field's; (7) Palmer House (another entrance is on Wabash avenue); (8) Art Institute of Chicago; (9) LaSalle Street station; (10) Dearborn Street station; (11) Conrad Hilton hotel; (12) Central Station; (13) Chicago Coliseum.



Restoring Fills . . .

When its first RailAid proved so helpful for ditching and other earthmoving work as to create a demand for its services, the Reading procured additional units. The road now has a total of 11 such outfits which are used for many different tasks.

Here are some typical jobs

. . . Ditching . . .

How Reading Uses RailAids

• Starting out with one Koehring RailAid in May 1954, the Reading now has 11 of these outfits working on its lines—all acquired on a rental basis and all working on maintenance-of-way activities. Boom attachments for converting the machines to power shovel, clamshell, dragline and lifting-magnet uses were also obtained so that, with their on-track and off-track adaptability, these machines can be employed in any maintenance use where lifting or material handling is required.

Although the Reading knew that the RailAid could be adapted to other uses, it acquired its first machine to handle an urgent ditching need. It was faced with a considerable amount of accumulated ditching work which had reached the stage where it could not be deferred much longer without necessitating excessive track maintenance. Not only was the ditching work such that it required a machine which could work both on the track and off, but much of it also was located in territory where the railroad right of way was too narrow to permit the machine to work on the ground without trespassing on adjoining property. It was decided that the RailAid, which combined the Koehring Model 205 convertible crawler-type crane with an on-track propulsion car, would fulfill this need.

The first machine soon proved itself and was in such demand that other units were acquired. In addition to ditching, the machines were employed in other applications as occasions arose, including bank and cut-slope restoration work.

Are Used for Laying Rail

The machines are also used for distributing rail, laying it and picking up the replaced rail. A magnet is used for handling joint bars, tie plates, etc. For rail-renewal work, the railroad built extra-heavy push trucks which ride on extra-heavy steel wheels cast in the railroad's shop. Two of these cars, attached by long coupling rods, will hold 25 rails and are towed by the RailAid by a long special coupling rod when distributing new rail or picking up the old rail, thus avoiding the expense of a work train. The RailAids used on the Reading are not equipped with standard car couplers, hence, they cannot be used for towing or pushing conventional equipment, the moving of which would require train crews.

The extra-heavy push trucks also have other uses as adjuncts to the RailAids. Large steel boxes, which are removable from the car frames, are mounted on these cars to permit them to be used for hauling earth out of cuts and for similar work, and are unloaded with a clamshell bucket handled by the RailAid. These boxes are designed to hold up to 10,000 lb and have a capacity of from 4 to 5 yd. Other containers and bodies are also available for hauling small materials and scrap.

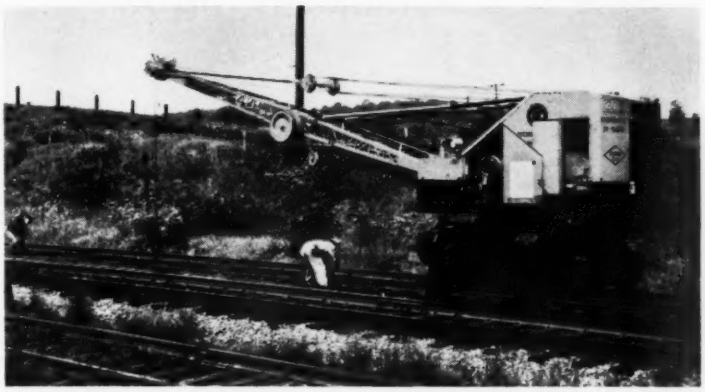
Another use made of the RailAids is the distribution of crossties required for spot renewals. (However, this does not apply to the larger number of ties required in connection with surfacing programs, which are unloaded from work trains.)

Other uses include bridge work and maintenance, stockpiling materials, the loading and unloading of track materials, the placing of railroad crossings and turnouts, transfer of lading from cars and other applications where lifting or earthmoving is required.

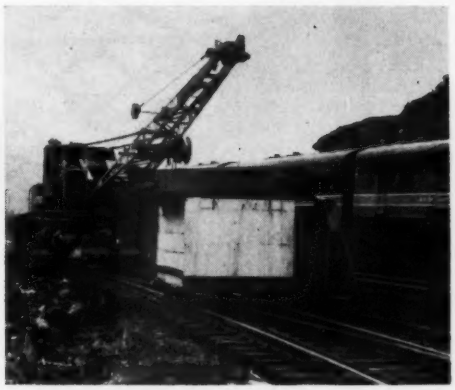
Of particular interest is the emergency use made of the RailAids after the destructive Diane hurricane struck Reading trackage in 1955. Washouts and three earth slides had isolated 20 miles of track. There were no RailAids or other earthmoving units within this area and there was no track available for bringing the outfits in by railroad. But within 24 hr seven RailAids were at work at various locations restoring the track to service. Each of these machines and its loading ramp were loaded on a contractor's flatbed trailer and the propulsion car was loaded into a highway truck. The outfit was then driven to the nearest available highway-railroad crossing to the work site and the RailAid unloaded. Within 10 min the RailAid had placed its propulsion car on the rails and, using its loading ramp, had climbed aboard and was ready to go to work.

In some instances, a second outfit was unloaded at the same crossing

that are done by the Reading's 11 RailAids



. . . Laying Rail . . .



. . . Handling Ties . . .

. . . Installing Culverts . . .

. . . and Repairing Washouts.

and, instead of mounting a propulsion car, worked on the ground to attack the slide from the rear. The railroad reports that, without being able to bring these machines, with their ability to work both on and off track, into this area, the job of restoring the line to service would have been considerably delayed.

Keep Machines Busy

The 11 RailAids are assigned to the work locations by the engineer maintenance of way, who keeps a list of the projects where such machines are in demand. When he knows that a machine is about through at one location, he reassigns it so that there is no lost working time.

Rules for Over-the-Line Movement

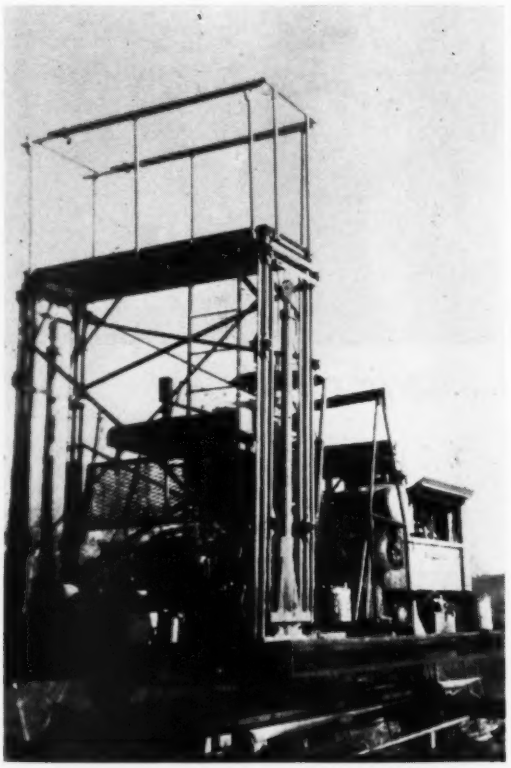
The RailAids are classified as track cars on the Reading and they move on the rails under the rules governing that type of equipment. When a unit is to be moved from point "A" to point "B", the machine operator has the station operator contact the dispatcher. The machine operator is given a written order addressed to him, which is almost like a "19" train order, permitting him to run from "A" to "B" but to be in the clear, either off the track or on a siding, at a specified time. As soon as the machine operator makes his run and gets the outfit in the clear at point "B," he has the dispatcher so advised and the dispatcher clears his records.

In the event that the dispatcher is not notified of the outfit being in the clear, he will not let a train go into this specified area unless it is first given a train order stating that the outfit has not cleared and that the train must proceed ready to stop on sight of the outfit. This is an ironclad rule on the Reading and frequent checks are made to see that it is being observed. Hence, these outfits have full protection while working on the track or in transit.

With an On-Track Machine . . .

MATERIAL for a day's use, as well as all necessary equipment for heating and delivering it to spray guns, is mounted on the machine.

. . . That Also Carries Scaffolding, This Road . . .



OVERHEAD work on through trusses is facilitated by scaffolding mounted on machine. Matisa set-off is used.

. . . Sprays Bridges and Saves

POLE GUN extensions of various lengths and shapes enable men to reach hard-to-get-at places with relative ease.

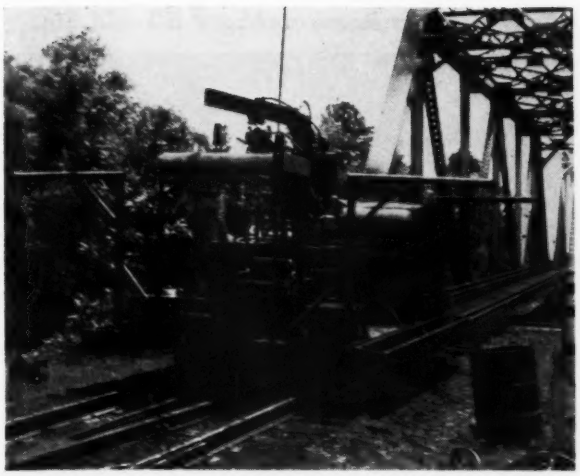
• Memo to bridge men: Want to reduce the cost of applying protective coatings to your bridges by as much as 80 per cent? That's the saving one railroad is realizing through the use of an on-track spray machine developed by its own forces. Not only does the machine carry the spray equipment and a supply of the coating to be applied, but it also is the supporting medium for various types of staging used with different types of structures.

Sprays on Three-Year Cycle

Using three of the machines, each accompanied by four men and a foreman, the road plans to spray all of its steel structures once every three years. The magnitude of this program is indicated by the fact that the road has more than 41,000 lin ft of through-truss spans and about 195,000 lin ft of other types of steel structures (plate girders, viaducts, etc.).

For protecting its steel structures the road uses Dearborn Chemical Company's No-Ox-Id. In some cases, however, where the appearance of the structure is an important consideration, aluminum paint is used.

The road reports that other protective materials have



JIB BOOMS, positioned at each corner, are used to support scaffolding platforms when painting girder spans.

STEAM coil is used to heat the material before application. Coil will then be replaced with an air pump.

also been applied with the new equipment with excellent results. For instance, asphalt coatings have been applied to built-up roofs and fireproofing materials to ties on bridges. In the latter work a 4-cu yd cart accompanies the spray outfit and carries a supply of gravel for application to the ties after they have been sprayed.

The Machine Described

The spray outfit is self-propelled and is easily removed from the track by means of a standard Matisa set-off. It carries a 125-cfm Ingersoll-Rand Gyro-Flo air compressor, a high-pressure steam-generating unit, a 200-gal water supply tank, a day's supply of the protective material and equipment for applying the coating.

The coating material for each day's work is carried in four 55-gal drums that are nested around an air-operated hoist which is used to load the drums onto the machine. The steam generator, a type used commercially for steam cleaning machinery, trucks, cars, etc., is thermostatically controlled to hold the temperature of the water circulating through a heating coil at approximately 180 deg F. The heating coil is used to increase the fluidity of the protective material to a consistency that can be sprayed. The water for the coil and generator is circulated by a small air-cooled gasoline engine. At the beginning of each day, the heating coil is placed in one of the material drums with the hoist. The No-Ox-Id is then heated until it reaches a temperature of 140 deg F or slightly less. It usually requires an average of 5 min to prepare a drum for spraying.

When the material has reached the required consistency, the heating coil is removed and placed in one of the other drums. A Grayco air-powered pump, surrounded by a light heating coil, is then placed in the first drum. The pump's heating coil provides sufficient heat to keep the material warm. It is now ready to be applied.

Three men equipped with individual spray guns are generally employed in the actual spraying operation, while the fourth man tends the machine. Each spray gun can be fitted with interchangeable pole gun extensions of various lengths and shapes to reach out-of-the-way places. For instance, if a man wishes to spray the underside of a girder flange he could do so by attaching a curved pole extension to his gun. This would permit him to reach the underside of the flange while standing on the deck of the bridge. In addition, the spraymen have a choice of four types of nozzle tips, depending on the surface being sprayed.

Officers of the road state that the outfit is able to give a 70-ft girder a complete protective coat in a single day. When spraying a through-truss span of the same length it takes somewhat longer—usually about three days are required to complete the job.

Carries Scaffolding Too

When working on through-truss spans, the upper members of the structures are reached by portable scaffolding mounted on the bed of the machine. Successive stages are added until the extreme upper structural members can be reached with ease. When it is necessary to move the scaffolding to another section of the truss, the machine and scaffolding are moved as a unit through the span.

In order to spray the outer surfaces of a girder span, aluminum platforms are used which are supported by jib booms provided at each corner of the machine. Here again the scaffolding platforms move with the machine, thus eliminating the necessity of removing and replacing the scaffolding as the work progresses.

The road has many structures supported by steel towers. For spraying those towers, "spider staging" is used, the supporting members of which consist of two cables suspended alongside the tower approximately 26 ft apart. An aluminum platform is supported between the cables and is raised and lowered as needed by air-operated motors. The air pressure needed for the hoisting motors and for the spraying operation is supplied by the machine. In this case, however, the scaffolding is not connected to the machine except as a source of air pressure.

Each gang is furnished a 2-ton truck for carrying supplies to the job site. Individual 275-gal tanks for gasoline, kerosene and water, are mounted on the truck bed. In addition, there is space for carrying 8 drums of protective material and one drum of solvent which is used to clean the machine and equipment. Also mounted on the truck is a fireproof steel shelter for the members of the gang.

When it is necessary to move the machine, it is loaded on a specially constructed two-wheel tilt trailer and pulled behind the truck from one work location to another.

SPIKES are pulled by man with claw bar, or by a hydraulic spike puller.

BALLAST at tie ends on one side is dug away if unusually full, except in cinders.

The Gandy Is Used to Remove About 50 Old Ties . . .

TWO MEN with tie machine, each with jack and lining bar, raise track slightly to permit removal of tie plates. Third man on ground handles tie tongs.

Using Machines, the B&O . . .

. . . Cuts Branch-Line Tie Costs

• Although the mechanization of maintenance on branch lines ordinarily lags far behind that on main lines, branch-line section forces on the Baltimore & Ohio are getting a big assist from their management by being provided with Nordberg Gandys for making tie renewals. The road has provided each of its 19 divisions with a Gandy which is available for branch-line use.

Instead of digging in the ties, as has been the practice on this road prior to 1955, the forces of adjacent sections are combined to form a temporary extra gang of sufficient size to provide a smoothly working organization. As a result of the new practice, more ties are being renewed per man per day and with less exertion than was previously possible, with a saving to the company of about 50 cents per tie. Also, tie renewals are completed sooner than heretofore so that the section forces have more time to devote to other maintenance.

When the ties are to be renewed on a branch line the track supervisor conducts an inspection of the ties in the fall and makes a record of the number which should be renewed in each mile during the following year. A copy of this record is turned over to the stores department so that an adequate number of the proper class of ties can be purchased.

Form Small Extra Gangs

Early in the spring of the following year the section foreman makes an inspection of the ties on his section and marks those which in his opinion should be renewed. He makes a count of these ties, which averages from 200 to 250 per mile, keeping his record by the number to be renewed between telegraph poles. In March, when three or four cars of new ties arrive at a time, the section forces of adjacent sections are combined by the track supervisor to provide a gang of from 8 to 12 men, and the ties are unloaded by a work train according to the foreman's record of so many between poles. By this practice, the moving of ties to their points of insertion is kept at a minimum.

Usually, four cars of ties, at 300 per car, can be unloaded in four hours.

The minimum size gang worked

. . . and Then Is Rigged to Insert the New Ones.

INSERTION of new ties with machine requires only the operator and one man on the ground to apply and remove the tongs. Second man on ground not necessary.

In 1955 the B&O began using Nordberg Gandys for removing poor ties on branch lines and for inserting new ones, instead of digging in by hand as was the previous practice. New method is reported to save 50 cents per tie.

with the Gandy is eight men, which includes two flagmen. Although the gang is protected by train order and trains do not move through without receiving a signal from the operator of the machine, flagmen are posted from a half mile to a mile on each side of the gang for positive protection.

Ordinarily, the gang will take out about 50 bad ties, depending upon the imminence of a train, then will stop while the position of the Gandy boom is changed from the pulling-out to the pulling in position, after which it will put new ties in the old beds. It only takes the men about five minutes to change the position of the boom, reeve the wire rope through a pulley on the machine frame and replace the tie tongs with a special inserting tong.

The usual procedure when taking out the bad ties is to have one man go out ahead with a claw bar or Nordberg hydraulic spike puller and remove the spikes from the ties marked to come out. Another trackman follows behind with a shovel and digs the ballast away from the tie ends on one side but only where the shoulder is unusually full.

When working in cinder ballast, this operation is not necessary as the machine will pull out the tie without help. He is followed by the Gandy and four trackmen, one of whom operates the machine. Two of these men, each with a track jack and lining bar, raise the track slightly so that tie plates can be removed and rail-cut ties will clear the underside of the rails. The fourth man applies the tie tongs of the machine's pulling cable to the ends of the bad ties and releases them after the machine has pulled the ties from the track.

How Ties Are Installed

When the boom of the Gandy and the rigging have been changed for inserting ties, it only requires the operator and the tongsman to insert the new ties. If the combined section forces number eight men, two will be used with the Gandy, two will flag, two will move ties up the bank and set them close to where they are to be installed and will later drop back and reapply the tie plates, using track jacks, and the last two men will be employed driving the spikes.

If the combined section gangs number 10 men, the two additional men are used for picking up the new ties from where they have been unloaded and setting them in starting position for the Gandy to insert.

If the total number of workmen is 12, two men will be employed in cleaning out the tie beds where necessary and digging down the high shoulders so as to receive the new ties.

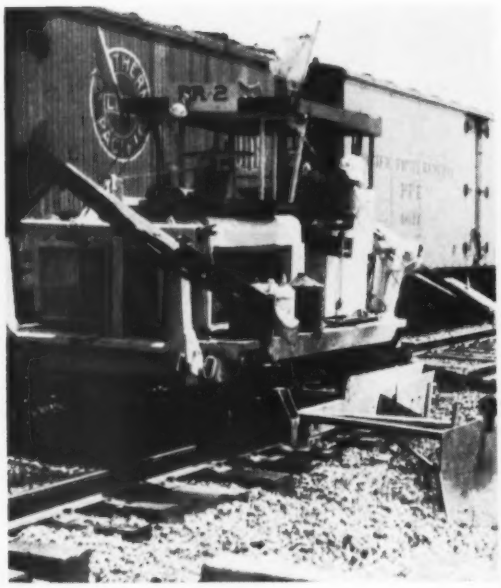
One of these tie gangs which was observed had 11 men and a small compressor mounted on a push car. The air compressor was used to drive a pneumatic spike driver. Two of the three additional men included the operator of the spike driver and a helper who pushed the push car, helped with the air hose and, when necessary, nipped the ties while the spikes were being driven.

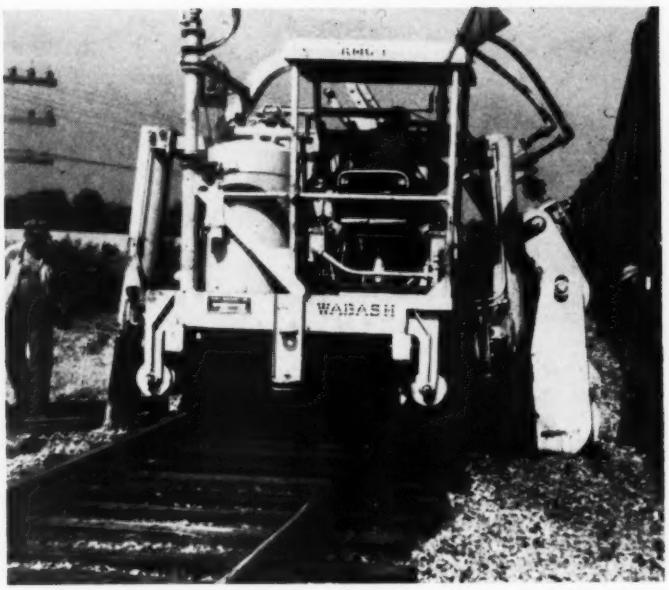
With this arrangement, the men who drove the spikes on the 8-man gang just started them on the 11-man gang. The third additional man went on ahead and pulled the spikes from the ties marked for renewal.

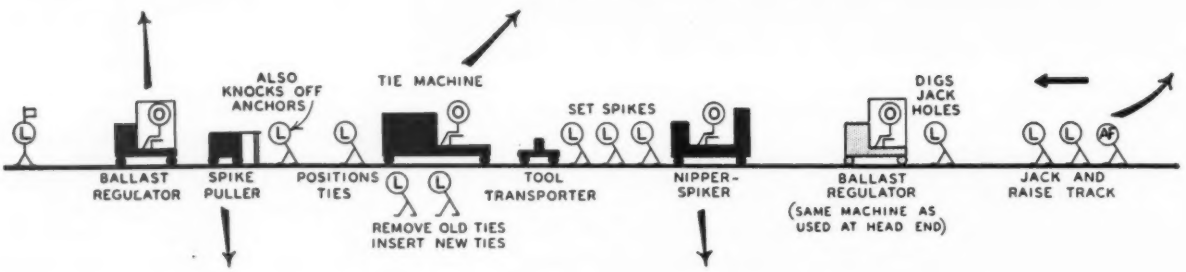
C. R. Riley, chief engineer maintenance, under whom these gangs were organized, states this work required twice as many men when the ties were installed by the digging-in method. It is estimated that the new tie-renewal practice saves, roughly, 50 cents per tie. These branch-line tie-renewal gangs of from 8 to 12 men will install an average of 121 ties each working day, although, on days when train interruptions are light and everything seems to be working right, they will install as many as 185 ties.

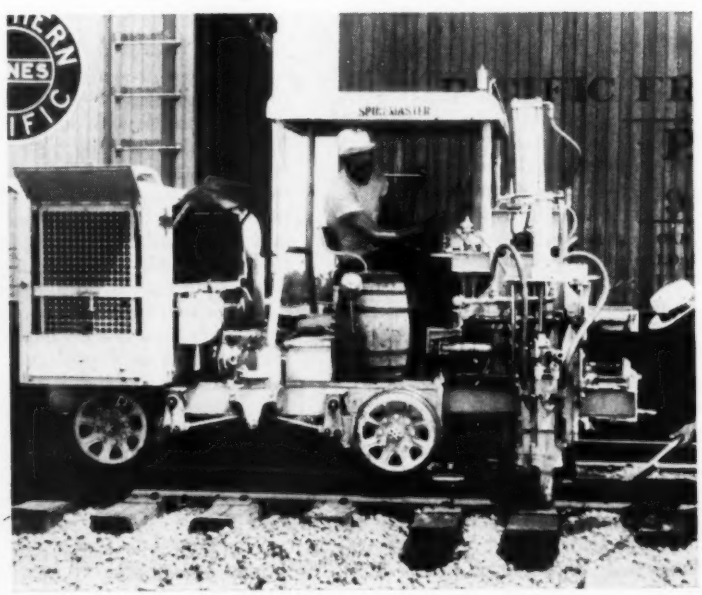
Fast Work with Two Large Tampers . . .

Gang Tamps 1.7 Miles per Day

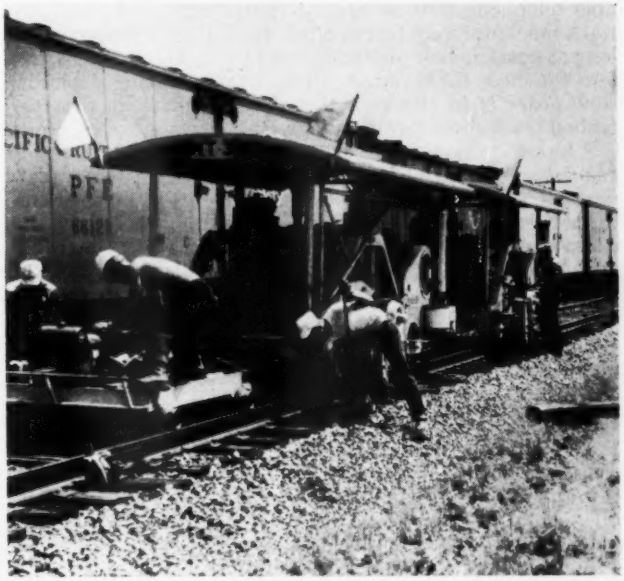


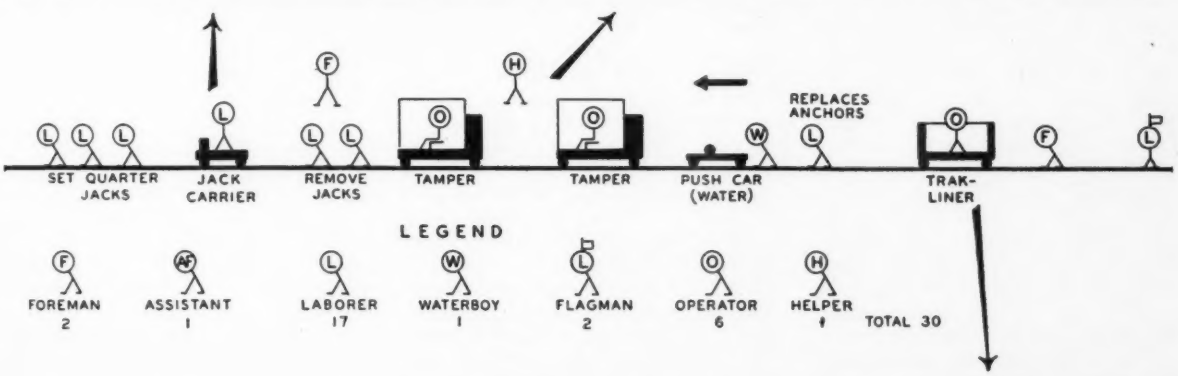






Equipping its 30-man tie-and-surfacing gang with eight machines and working two production tampers in tandem, the Wabash is obtaining a high rate of production. Progress is expedited by having truck gangs unload the new ties and ballast ahead of the work and by having the full cooperation of the road's operating department.





• Remarkable success is reported by the Wabash with a 30-man gang which it organized to renew crossties and to raise, tamp and line track. This gang is highly mechanized and employs eight machines, two of which are Matisa tampers which work one behind the other tamping alternate ties. (The average pace of this gang while it is actually working is 40 rail lengths of track completed per hour.) And, including delays from trains, getting started in the morning and closing up at night, this gang already has completed 118 miles of track in 70 working days, which is the equivalent of 1.7 miles per day.

Aside from the organization and mechanization of this gang, the maintenance of way department has splendid cooperation from the road's operating department. On double-track territory freight trains are detoured during the gang's working hours over the other main track, and the only trains for which the gang must get in the clear are the passenger trains. In single-track

More on next page ► ► ► ► ► ► ► ►

"The average pace of this gang while it is actually working is 40 rail lengths of track completed per hour."

territory the road endeavors, insofar as is possible, to fleet all trains which must pass through the gang. A portable telephone is used so that the track machines may be operated as long as possible before getting them into the clear for trains. A 10-mph slow order is in effect on the disturbed track during working hours.

Another reason why this gang can achieve so high a production is that all highway grade crossings, turnouts and railroad crossings are retimbered, raised and surfaced in advance of the timbering and surfacing gang by the road's truck gangs. The latter are small gangs which take care of the maintenance on about 40 miles of track. These gangs also distribute the new ties and ballast which will be required by the larger gang, and pick up and dispose of the old ties after the larger mechanized gang has passed on. New ballast is unloaded at the rate of approximately six cars per mile.

The track supervisor on whose track the gang is working has direct charge of the surfacing gang and he can coordinate the activities of his truck gangs with those of the larger gang. A gang foreman, a track-liner foreman and an assistant foreman provide the supervision within the gang, which is comprised of six machine operators, a helper operator and 20 laborers, including two flagmen and a waterboy. The gang is divided into three units; one for making tie renewals, another for raising and tamping the track, and the third for lining.

The eight machines with which this gang is equipped are a Kershaw Ballast Regulator, a Fairmont hydraulic spike puller, an RMC TieMaster, an RMC SpikeMaster, a Matisa jack carrier, two Matisa power tampers, and a Nordberg Trakliner. All of these machines, with the exception of the spike puller and jack carrier, are run by machine operators. The spike puller and jack carrier are operated by laborers.

Renewals Run 225 per Mile

The tie-renewal unit is preceded by the Ballast Regulator which makes one pass to remove the ballast from the ends of the ties on the side which the TieMaster will use while removing and inserting ties. This unit, which works under the supervision of the gang foreman, is comprised of seven laborers and two machine operators, and is equipped with the spike puller, the TieMaster and the SpikeMaster.

Tie renewals average about 225 per mile, including the ones installed in the highway crossings. Ties which will not last three years are removed. About 10 per cent of the ties removed are judged good enough for side-track renewals and are used later by the truck gangs.

Two men accompany the spike puller, which is the leading machine of this unit. One man pulls the spikes and the other knocks off any rail anchors that impinge against the tie to be replaced. Both men also position the new ties, placing them to one side of the tie to be removed and yet convenient for handling.

The next operation is the removing of the old ties and inserting new ones. This work is accomplished by the TieMaster and two laborers, plus a machine operator. The laborers remove the tie plates from the old ties after the track has been raised slightly by the TieMaster, shovel the ballast away from the end of the old tie where this is necessary, move the old tie to one side after ejection by the machine, place the new tie in proper position and drive the follow-up strap into a prebored spike hole of the new tie, recover the follow-up strap, and replace the tie plates. The old ties are left where they lay, instead of being loaded by the machine's crane onto a push car, which materially speeds up the production of the TieMaster.

Behind this machine come three laborers with a Woolery track-tool transporter on which a keg of spikes is carried. These men set the spikes in the newly placed ties and the SpikeMaster, which follows directly behind, nips the ties and completes the spike driving.

Raising and Tamping

The raising-and-tamping unit of the gang employs the Ballast Regulator, the jack carrier and the two production tampers. It is comprised of 10 laborers, three machine operators, a helper operator, and an assistant foreman.

The lead machine is the Ballast Regulator which is used to pull the ballast from both shoulders up toward the ends of the ties. It is followed by a laborer digging holes in the ballast for placing track jacks at the rate of four jacks per rail length. Ballast is ¾-in to 1½-in slag.

Using a spotboard set on grade stakes previously placed by the engineering forces, the assistant foreman and two men do the raising at the joints and centers, and two more men, with another doing the sighting, raise the track at the quarters. The gang foreman handles the placing of the spotboard and levelboard.

A large number—22 per side—of Buda aluminum track jacks are used for keeping ahead of the two production tampers. It requires the full-time services of one man, using the jack carrier, to distribute the jacks at the jack holes ahead of the raising operation. It also requires the services of two more men at the lead tamper to release the jacks and set them on the dumping platforms of the tamper.

Spaced only a few feet apart, the two production tampers are the last machines of the raising-and-tamping unit. These machines are the pace-setters for the entire gang and they work continuously. The first machine tamps every other tie and the second tamps the alternate ties.

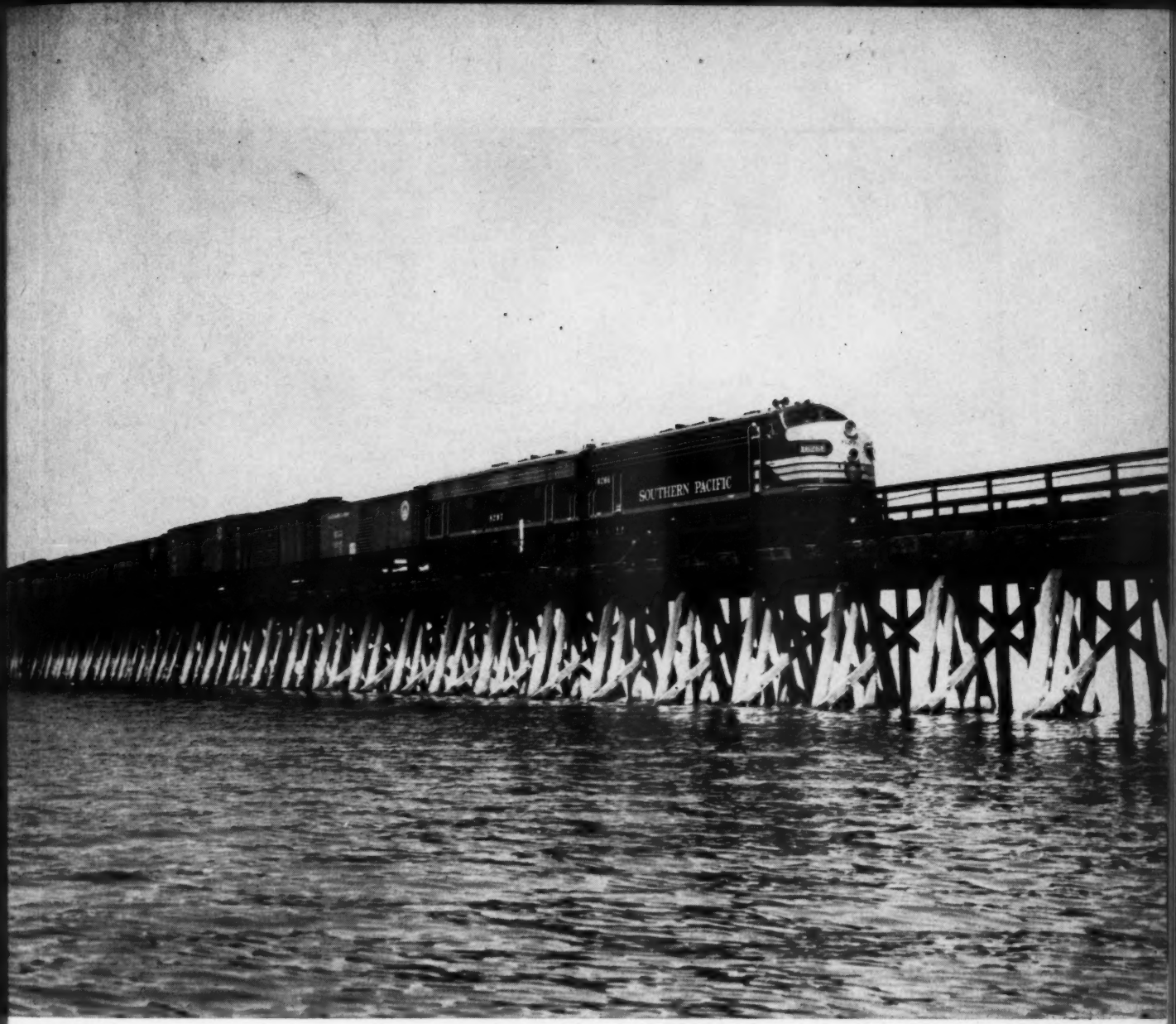
A laborer, following behind the tampers, replaces the removed rail anchors and adjusts others.

The lining unit is comprised of the lining foreman with a lining scope and an operator using a Trakliner.

About seven laborers of this gang are local men. The others, including the machine operators, are men who stay with the gang and are housed in camp cars. The machine operators service and make minor repairs to their machines.

The gang started work on March 23 and by June 30 it had completed 118 miles of track at 17 different work locations. It is intended that the equipment of this gang will handle all surfacing and tie replacements on the Wabash between Chicago and St. Louis, St. Louis and Kansas City, Decatur and Moberly and Decatur and Danville.

This gang was organized by J. M. McLoughlin, division engineer, and he is in general charge of it while it is working on the Decatur division. J. N. Sailor, superintendent of the Decatur division, organized the handling of traffic.



NO MORE SLOW ORDERS. Trains are at present slowed considerably as they traverse the 13-mile Great Salt Lake trestle. When fill is completed, normal speeds will be permitted.

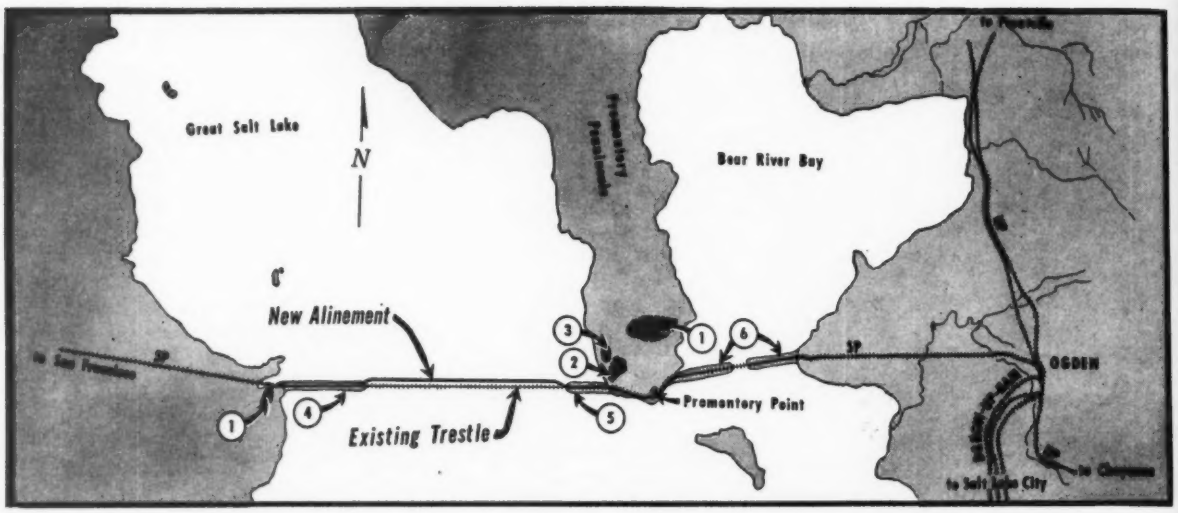
Equipment now being assembled for one of the largest earthmoving projects ever proposed:

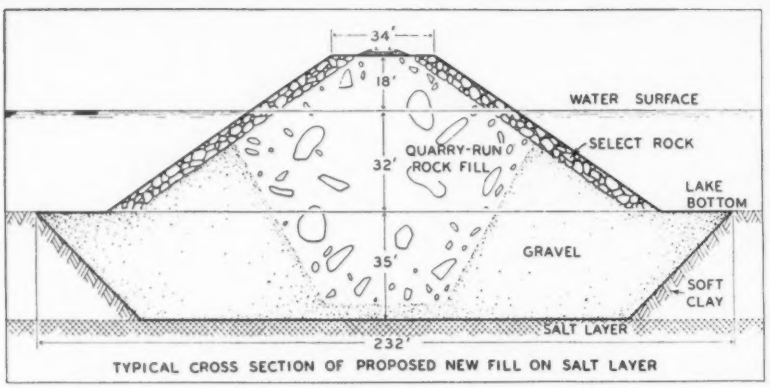
"Operation Salt Lake"

–A Preliminary Report

• In June work began on one of the largest railroad earth-moving projects ever attempted–the construction of an embankment across Utah's Great Salt Lake. The embankment will replace the existing wood trestle, providing faster service and reduced maintenance for a vital link in the Southern Pacific's Overland route. The line will be constructed parallel to and 1,500 ft north of the road's present trestle, a key portion of the famous Lucin cutoff.

The work begun in June consisted of the dumping of rock fill by railroad forces in extension of the existing Saline fill (see map) at the east end of the trestle. The remainder of the project–estimated to cost a total of $49 million–has been contracted by the Morrison-





SAND, GRAVEL AND ROCK will be supplied from the quarries and borrow pits at locations (1), (2) and (3). The west end of the existing trestle terminates at an embankment, called the "Rambo Fill," (4) which extends 5.1 miles into the lake. The east end of the trestle now terminates at the 2.5-mile "Saline Fill" (5). The new embankment will be begun from the extremities of these two existing fills. The fill across Bear River Bay is called the "Bagley Fill," and was completed some years ago. Openings will be left in the new embankment to allow passage of small boats.

TYPICAL CROSS SECTION of the proposed embankment. The width of the base of the fill will vary, depending upon the character of the lake bottom, from 160 to 483 ft.

Knudsen Company, Boise, Ida. Involved in the overall project are such impressive operations as the dredging of some 15 million cubic yards of mud from the lake bottom and the quarrying, transporting and placing of some 32 million cubic yards of sand, rock and gravel fill.

Placement of the major portion of the fill is scheduled to begin next month. Morrison-Knudsen has constructed a camp on Promontory peninsula to house some 600 workmen and their families. The project is estimated to take four years for completion. Eleven mammoth barges, with hydraulically operated bottom-dump doors, will place the fill in a trough to be dredged out to a depth of 60 ft below the surface of the lake. Six of the barges, built by Kaiser Steel, will be capable of carrying and depositing approximately 2,000 cu yd of material per trip.

Under Consideration Since '53

Extensive tests have been made since 1953 to determine the feasibility of constructing the fill. Said SP President D. J. Russell: "In our study of nine basic plans for replacing or improving the present trestle we found that the relatively new science of soil mechanics made possible the course we decided upon."

The World's Longest Bridge

When, in 1901, financier E. H. Harriman took over the reins of the Southern Pacific, veteran officials of the road were quick to point out that, due to lack of money, many grades and curves—unavoidable during construction—had not been subsequently eliminated. For example, Julius Kruttschnitt, the road's general manager, pointed out to Harriman the long curving line around the north end of Great Salt Lake which added some 44 miles to the rail distance between Sacramento and Ogden. "Get it out of there!" commanded Harriman. Thus began construction of the Salt Lake trestle, vital portion of the line known as the Lucin cutoff, and the longest bridge ever built.

At the beginning of construction, fill was carried out as far as practicable from either shore in comparatively shallow water. When deeper water was reached, preparations were made to commence pile driving. Surveys showed the maximum depth of the lake to be about 30 ft—in most places considerably less. The leads were made ready and the pile driver struck the first blow on the initial 26-ft pile. The pile disappeared! The construction crew selected a second pile—this one 28 ft long—and placed it atop the first. Again the hammer fell, and again the crew found themselves looking at the surface of the water, but no pile! Investigation showed they had chosen a portion of the lake where the salt-encrusted lake bed was underlaid with a 50-ft layer of soft mud. The problem was finally solved by driving 70-ft piles and filling the softer spots of the bed with dirt to aid in furnishing support.

By March 1903 work had progressed rapidly, in spite of the

EASTERN END of the present trestle is called the Saline Fill. It was in extension of this embankment that work began on the $49-million project last June. At the right is Promontory peninsula where much of the quarrying will be done to provide material for the new fill.

The mechanics of getting the fill material from the borrow pits to the embankment site are ingenious. Eight power shovels, including six Bucyrus-Erie electric shovels, will excavate the gravel and rock from the pits —mainly on Promontory peninsula. The material will be put through a crushing and screening process to reduce all lumps to 8-in size or smaller and then deposited on what is said to be one of the fastest and longest overland conveyor systems ever built. The material, deposited on the 54-in wide conveyor belts, will be carried nearly two miles downhill to a stacking conveyor which will deposit the gravel into a 70-ft high storage pile. Running through the base of this pile will be two tunnels with a 72-in wide conveyor belt in each one. Material will be fed to these belts by overhead feeders. The two conveyors will have a combined capacity of 12,000 tons per hour and will operate at a speed of 550 ft per minute. They will carry the material approximately 250 ft to the edge of the lake where it will be dumped into the barges.

An interesting feature of the conveyor system, being built by Hewitt-Robins, Inc., is the fact that it will require, overall, no power to operate. Due to the fact that it will run downhill (a 400-ft drop from gravel pit to lake shore), its speed will have to be regulated to keep it from running too fast. Regenerative motors, used to start the system rolling, will, during operation, operate as generators and supply an estimated 618,000 watts of electrical power per hour. Much of this surplus power will be transmitted by power line to the borrow pits for use in operating the electric shovels. Hewitt-Robins claims the system will handle an average of 75,000 tons of gravel per day. At full capacity, it is reported, this rate can be increased to 90,000 tons per day, with the belts running as fast as 800 ft per min.

ONE OF 32 SECTIONS for one of the 2000-cu yd capacity barges to be used to deposit the fill is loaded upon a flat car at Kaiser Steel's plant. The first barge of the fleet of six was launched August 11 and christened the "Ogden" in a colorful ceremony. Barges are being assembled at Morrison Knudsen's Little Valley camp on Promontory peninsula.

Bedding Conditions Vary

The embankment will be roughly 13 miles in length. Thirty-four feet in width at the top (17 ft above the surface of the lake), the base of the embankment will vary in width with lake bed conditions—from 160 ft to 483 ft. Select rock (see cross section) will cover the face of the embankment which, at times, will be subject

setbacks encountered earlier, and rail was laid on the completed portion of the enbankment. However, the first construction locomotive to run out on this section of track was pitched into the lake as the salt crust lake bottom suddenly gave way under the added weight. More fill was added to the sunken embankment. Work went on, and just when it looked as though the trouble was over, a portion of the trestle gave way beneath a construction train, tossing the train into the water. More men were added to the job until the total work force reached 3,000 men. The project became popularly known as "the failure." But, as trainload after trainload of fill was added to the soft mud bed, the sinking troubles gradually came to an end. The cutoff was opened November 26, 1903—the total cost having reached $4,200,000 before the roadbed was considered sufficiently sound to permit the operation of passenger trains.

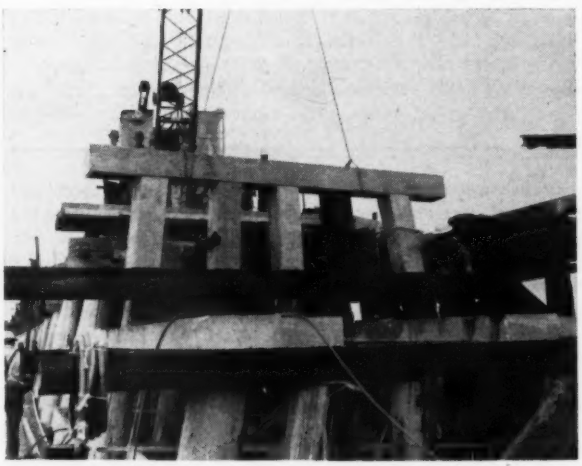
to 8-ft high waves churned up by winds across the lake. The embankment will be continuous except for pass-throughs to permit the passage of small boats.

According to studies conducted by the International Engineering Company, San Francisco, three different bedding conditions will be encountered. About two miles of the fill will rest on a thin salt crust layer. The embankment through this portion of the line will reach its maximum base width. Five miles of the embankment will be placed on deep salt—the most stable lake-bed condition to be encountered. The remainder of the embankment will be placed on clay. The maximum height of the embankment will occur in the deep-salt-bed region where the distance from track to base of embankment will be about 85 ft.

Installation of track and signal equipment upon completion of the embankment will cost less than $2 million—a very minor portion of the overall cost of the project which will run approximately $4 million per mile of fill.

W. M. Jaekle, chief engineer; V. E. Anderson, division superintendent; and H. J. Willard, resident engineer, are supervising the project for the railroad.

REPAIR OF THE TRESTLE was begun while the piling was still smouldering. Bents, framed of 12 by 12's, were prefabricated and carried out on the trestle to be placed in position.



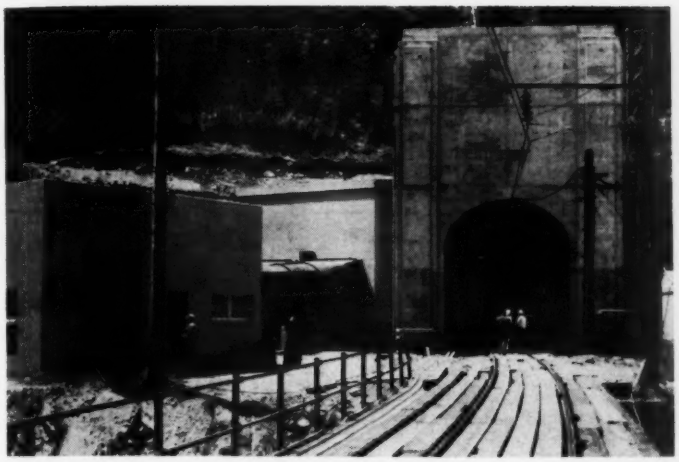
PREFABRICATED BENTS were lowered in place on the piling which had been cut off at sound wood. Salt incrustation had prevented the fire from burning down to the water line.

Trouble-Free for 52 Years—and then . . .

Fire demolished a 645-ft portion of the Salt Lake trestle on May 4 of this year. Since it was opened in 1903, the trestle had an excellent safety record—never having been the scene of a major fire or accident.

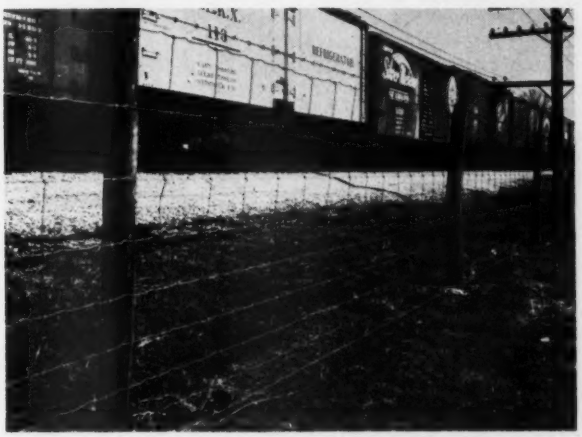
The fire was reportedly started by burning waste dropped from a hot box. All traffic was immediately rerouted around the lake and fireboats were summoned when the fire was discovered, but high winds kept the boats away from the trestle for hours. The fire was finally put out by dynamiting.

Reconstruction began as the wreckage still smouldered. Some 300 men were put on the job—many of them from the Morrison-Knudsen camp working on the fill project. Communicating by radio and working around the clock, the rails were cut away and the CTC and other wires restrung. Since salt incrustation had prevented the piling from burning to the water line, the burned piles were cut off at sound timber to provide supports for the new construction. Meanwhile, bents framed of 12 by 12's were being prefabricated at nearby Saline on Promontory peninsula. Some of these bents were hauled by rail to the burned-out portion of the trestle; others were dropped into the lake and towed to the west end of the burned portion of the span. At 6:30 pm, May 10, trains again rolled over the now rebuilt trestle which, after the new bents had been installed atop the old piling, was ballasted and relaid with rail.



CASCADE TUNNEL of Great Northern, eight miles long, has been fitted with a ventilation system at a cost of $650,000. Purpose is to permit operation of diesel-powered freight trains through tunnel which, heretofore, has been electrified. Photo above of east portal shows enginehouse at left with air conduit entering tunnel. To prevent air from "short-circuiting" back to fans east portal has automatic steel door (right).

News Briefs in Pictures . . .



MANY POSTS for right-of-way fencing on the Baltimore & Ohio now consist of "penta"-treated wood. Fencing of this type has been installed at locations between Parkersburg, W. Va., and Cincinnati, Ohio. This view (courtesy Dow Chemical Company) was taken west of Pleasant Plains, Ohio.

PASSENGER PLATFORM of the Forest Park station of the Chicago, Aurora & Elgin has been fitted with this 300-ft wall of "Lite Green Alynsite" translucent fiberglas. Purpose of the corrugated panels is to protect patrons during inclement winter weather and to block summer heat, while at the same time rendering soft, eye-pleasing illumination.

WHAT'S THE ANSWER? . . .

. . . a forum on track, bridge, building and water service problems

Preboring Branch-Line Ties

Track ties are generally adzed and prebored to a fixed number of standard templates on each railroad. The smallest template used on a given road frequently does not fit the base of branch-line rail. Under these circumstances, should the ties furnished branch lines be prebored? Why? Explain.

Don't Prebore Branch Line Ties

By R. D. Simpson
Maintenance Engineer,
Norfolk & Western, Roanoke, Va.

All ties whether they be used in heavy traffic main tracks or in lighter traffic branch lines should be prebored if proper templates are available to assure a fit of the prebored holes in the field. Primarily, preboring is beneficial in that it permits spikes to be driven straighter into the tie with less damage to wood fiber. It thus assists materially in obtaining and maintaining proper gage. Of secondary importance, preboring permits better penetration and distribution of the preservative within the tie-plate area in certain species of ties that normally do not accept deep penetration. Unless these benefits are realized there is no economy in preboring.

It is, therefore, my opinion that if templates are not available to fit actual conditions of rail and tie plates in certain localities there is no justification for going to the expense of preboring ties for these locations. The presence of prebored holes very close to the point where the spike must be driven makes it difficult to drive the spikes straight into the wood. This tends to damage wood fiber and may affect the gage, thus defeating the original purpose of preboring.

The value of preboring merely as a means of obtaining additional preservative in the tie plate area is questionable insofar as our railroad is concerned. In about 85 per cent of our ties the treatment given produces a product of almost complete penetration. Ties in the white oak group, comprising about 15 per cent of our purchases, will not, of course, accept a deep penetration but we can ill afford to prebore all such ties for the sake of the 15 per cent which do not readily accept treatment.

Preboring Impractical

By R. B. Radkey
Engineer of Ties and Treatment,
Illinois Central, Chicago

The number of different tie-boring patterns to be used is governed by practical considerations. The problem of scheduling crosstie manufacture, storage, and delivery, becomes increasingly difficult as a larger number of boring patterns are added. Probably three or four combination patterns will fit the tie-plate punching on over 70 to 90 per cent of a given railroad's trackage.

Where branch lines are laid in lighter rail with non-standard tie-plate punching, it is impractical to furnish a pre-bored tie. This older rail has a great variety of base widths and tie-plate punchings. The number of ties required annually for a specific pattern is too small to be handled economically. Where the wrong boring pattern is furnished, spikes tend to be driven toward the holes resulting in skewed tie plates or poor gage.

The ties furnished may have holes prebored to insure preservative distribution, if the holes are located not to interfere with the spiking. Probably the simplest and most practical answer is to furnish sawn ties which are not prebored. The sawn face will provide a flat surface for tie-plate bearing and all treating plant boring and adzing expense is avoided. Hewn ties should be adzed, but not bored, to provide a flat rail bearing surface.

Prebore All Ties

By L. P. Drew
Assistant Chief Engineer, Union Pacific,
Omaha, Neb.

From my personal experience and observation, all ties that are treated should be pre-bored, preferably to a template which will fit the

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Answers to the following questions are solicited from readers. They should be addressed to the What's the Answer editor, Railway Track and Structures, 79 W. Monroe St., Chicago 3, and reach him at least five (5) weeks in advance of the publication date (the first of the month) of the issue in which they are to appear. An honorarium will be given for each published answer on the basis of its substance and length. Answers will appear with or without the name and title of the author, as may be requested. The editor will also welcome any questions which you may wish to have discussed.

To Be Answered in the November Issue

1. Where the "cycle" method of making tie renewals is used, what factors determine the length of the cycle? Explain.

2. What causes cracks to appear on the surfaces of asphalted roofs? How can this condition be prevented? Repaired?

3. What practical methods are available for the heat treating of switch points in track? Are any special precautions necessary? Is there any advantage in the use of heat-treated switch points?

4. Can the installation of tie pads be justified on bridge ties over 10 years old on steel bridges? Will the increased life of these ties offset the damage which is done by pulling and redriving the spikes? Explain.

5. In designing diesel servicing platforms, what advantages are there in placing the service lines underground? Overhead? What are the advantages of each? Explain.

"THE SAVINGS ARE SO OBVIOUS" . . .

"THE TERRITORY THAT YOU TREATED FOR BRUSH CONTROL A YEAR AGO LOOKS SO GOOD NOW, AND THE SAVINGS WERE SO OBVIOUS, THAT WE WANT TO FOLLOW UP THIS FALL. WE FIGURE TO MAKE A LIGHT TREATMENT ON THE AREAS THAT YOU SPRAYED A YEAR AGO, AND MOVE INTO NEW AREAS WITH THE HEAVY TREATMENT."

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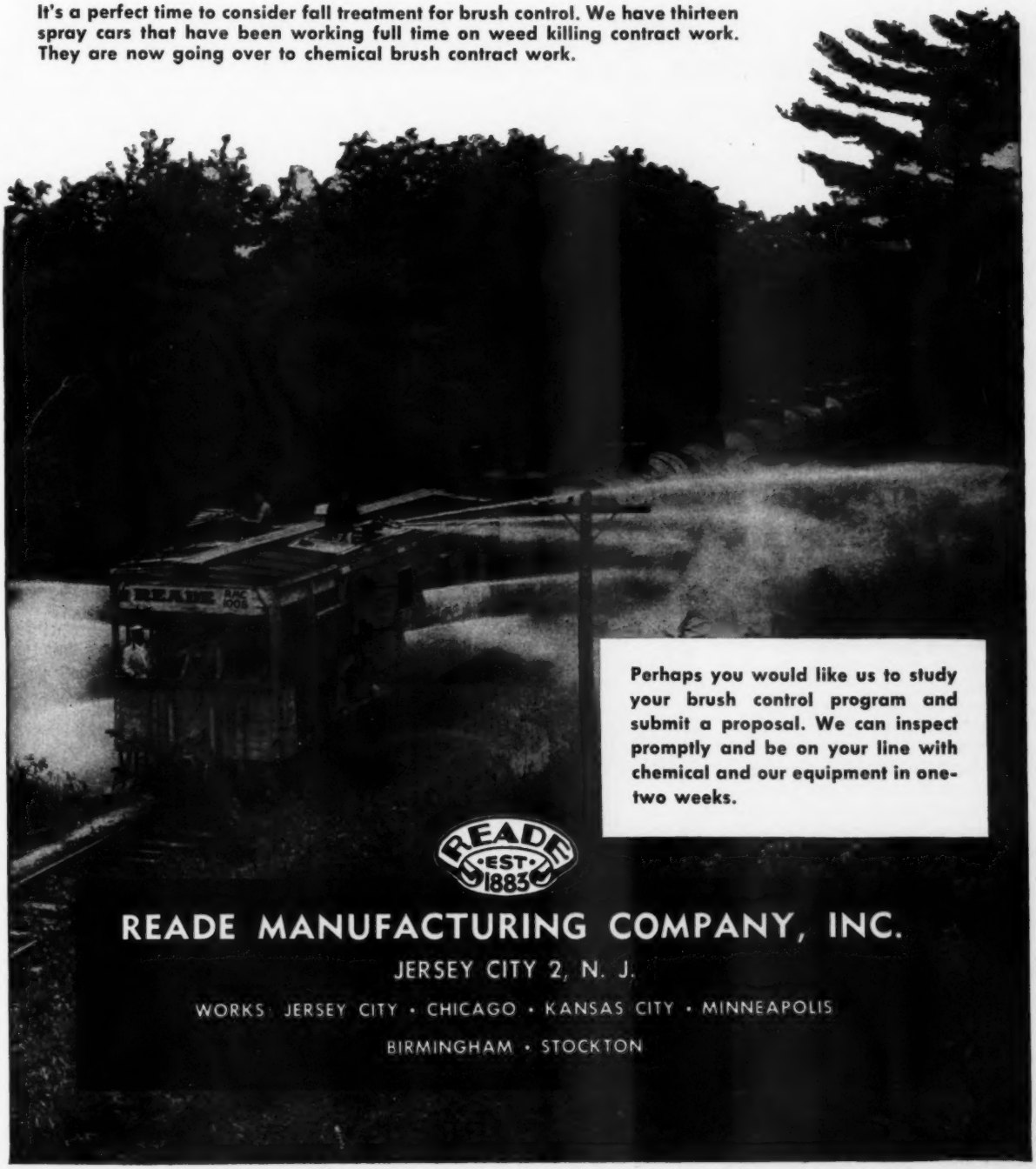

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rail under which ties are to be used. However, if ties are placed under a rail that does not fit the borings, there is no disadvantage in the prebored hole because of the increased penetration of the treating solution around it.

This lateral penetration sometimes reaches as much as three or four times the diameter of the hole and therefore, regardless of whether or not the spike is driven into the prebored hole, the resistance to decay that is afforded by the penetration of the treating solution in the center of the tie more than pays for the cost of preboring the holes.

In addition to the above, it is the general practice on most railroads to relay light rail on branch lines with secondhand heavier rail from main-line tracks. Therefore, during the life of the tie in branch line, it is very probable that the rail will be relaid and the new spikes driven more nearly into the prebored holes.

All of us who are familiar with tie renewals realize that the most vulnerable spot in the treated tie is directly under the tie plate, and any method that will tend to increase the life of this portion of the tie should be encouraged.

Cost and Performance Data

The introduction of electronic data-processing and computing machines on the railroads is making tailored up-to-date cost and performance figures quickly available. What job and cost performance reports and data should prove most valuable to the engineering and m/w departments? To what extent are they being made available? Explain.

Will Furnish System Data

By M. C. Bitner
Manager, Methods & Cost Control, Pennsylvania, Philadelphia

The Pennsylvania is now furnishing, for all work done by track gangs, accurate cost and performance figures on four regions and expects to supply this data for the entire system by the end of the year. Electronic data processing machines are used by the accounting department for the processing of the information and for the preparation of the reports. Thereby, it is made possible to quickly furnish m/w supervisors with statistics and reports which are helpful in carrying out their day-to-day responsibilities.

Supervision at all levels can do a more efficient job if cost and performance reports are given them quickly, with sufficient detail to be of practical value, and in such form so that they can be easily analyzed. Such reports should show the following information:

(1) Who did the work.
(2) Exactly what kind of work was done.
(3) How much work was done.
(4) How many man-hours were used and how much money did it cost.
(5) Where was the work done.

The initial information is furnished by the track foreman on a work distribution card on which he shows, by code numbers, the gang doing the work, the section where the work is done and the kind of work done. He also shows the amount of work done, in units, and the number of hours for each rate-of-pay classification for the job being done. Trackwork item code numbers have been established for the different types of work done by track gangs, with different code numbers being assigned for the same type of work where the work is done under different conditions—such as track with different kinds of ballast, and work done by hand or with machinery. For example, there are 10 different code numbers used for raising track to show work done in cinder, slag, gravel or stone ballast and whether done by hand, with on-track tampers or with air guns.

The accounting department processes these work distribution cards with modern electronic data processing and computing machines to furnish the cost and performance reports to m/w supervision and also to obtain charges by ICC accounts for their regular accounting department reports.

The cost and performance reports are furnished the track foreman, track supervisor, district engineer and region engineer. For each kind of work, these reports show the units of work, the man-hours and the cost of doing that work for each gang. each track supervisor and each district. The location of the work is also shown so that the cost of maintaining a section, subdivision or district can be determined, regardless of which gangs do the work in that territory.

Heavy-Duty Pile Drivers

What performance characteristics and capacities are most desirable in pile drivers for heavy bridge and building work? How is the most suitable length of leads determined? Size of hammer? Explain.

Each Job Is Different

By Field Engineer

The best machine for driving piles for new construction is a steam skid rig with a heavy single-acting hammer. The skid rig is, of course, not suitable for redriving an existing bridge and very few railroads will have enough new construction to justify the expense of a large skid rig. So the choice will probably be between a locomotive crane or a crawler or motor crane, and will probably be influenced, at least in part, by consideration of other uses which will be expected of the machine. The crawler crane will give advantages of maneuverability in close quarters and the ability to work on softer ground—on mats if necessary. The motor crane moves between jobs more readily and is—with outriggers set—more stable than a crawler crane of like capacity.

For all-around work, the leads must be long enough to handle any probable length of pile, plus the height of hammer and rigging. For

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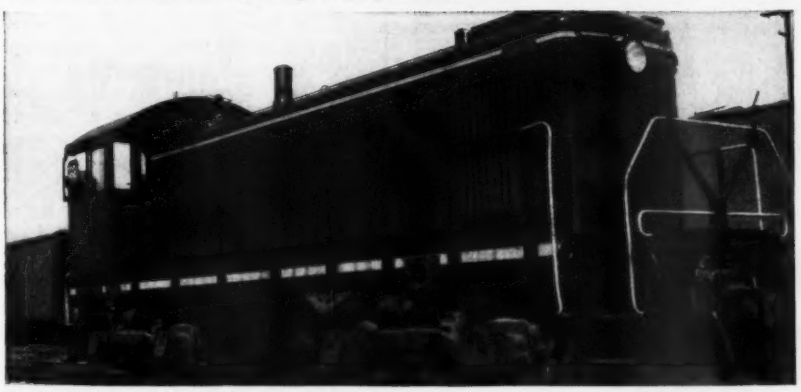

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What's the Answer (Cont'd)

a locomotive crane sitting up on an existing bridge, or any other rig on high falsework, length of leads below the bell housing of the hammer must equal the penetration required plus the wasted height above cut-off. Too short a set of leads can result in excessive splicing of piling. Since piling of 60 ft or more are not at all uncommon—plus 10 to 14 ft for hammer and blocks—you need a fairly long set of leads for an all-around machine. Leads—like crane booms—can be made in sections so that it is not necessary to carry the full length around all the time.

Leads can be either hung entirely beneath the crane boom or can extend above the boom. The former is preferable for a crane used only part time as a pile driver, but for very long leads—say upwards of 70 ft—the center-hung leads are necessary.

The leads should not only be pinned to the boom at the head (swinging leads) but should be braced to the machine at the foot as well. On an off-track machine, the foot bracing should include provision for adjustment to drive fore-and-aft batter piles. With a locomotive crane there should be a moonbeam for driving batter piles. With a crawler or motor crane, the fore-and-aft batter adjustment will take care of most situations.

As for the hammer, I would prefer a single-acting hammer of about 15,000 ft-lb striking energy. It is known that the machine will be used only for driving sheet piling and medium to short H or pipe piles, a double-acting hammer might prove advantageous. In any event, the hammer may be run by either steam or compressed air. And the steam or air capacity should be amply large to operate the hammer for extended periods of hard driving. If steam falls off, hammer speed drops, height of fall drops a bit, striking energy is reduced. This will cause the appearance of full bearing value in the pile before it has actually been attained. Incidentally, one rather authoritative specification which I have seen requires that precast concrete piling be driven with a hammer which develops at least 1 ft-lb of striking energy for each pound weight of pile driven, but not less than 6,000 ft-lb in any event.

That, quite roughly, covers some of the generalities. Each pile-driving job is different, and equipment will be modified or added to accordingly. Frequently, a third drum on the rig, or at least a "niggerhead" on the side, will be a great convenience for yarding in piles, caps, etc. A jet pump and pipe will be downright necessary at times, and here again that third drum could be handy. In any event, build your outfit plenty stout to begin with for a saving in the long run.

On-Track Unit Preferred

By C. H. Sandberg
Assistant Bridge Engineer, System, Atchison, Topeka & Santa Fe, Chicago

The Santa Fe has recently purchased two on-track pile drivers. The principal performance characteristics and capacities that were thought desirable are as follows:

The power unit should be diesel with a torque converter and having sufficient horsepower to operate on a level track at 20 mph for a minimum of 25 miles. Also it should be able to negotiate a 5 per cent grade alone and a 3 per cent grade with one 70-ton car. The capacity of the machine should be 25,000 lb at its

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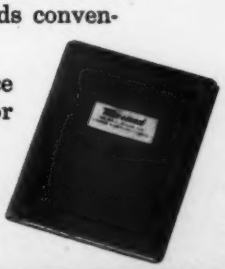

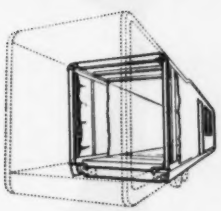

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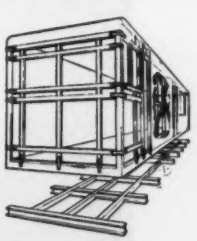

Conventional trailers are essentially a box-on-frame, with certain weaknesses and limited durability.

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What's the Answer (Cont'd)

full working radius without outriggers. The center of the pile leads should be 22 ft from the center of the front axle. The length of the leads was determined to be approximately 60 ft, constructed so as to drive piles on both a side and forward batter. Provision also was to be made for power-operated raising and lowering of the leads and for battering. The generating unit should be of sufficient size to supply floodlights and permit the operation of small tools. In addition to the customary hammer and pile lines, another line for handling jet pipe or bridge materials should be provided.

The proper size of hammer, of course, depends on the type and weight of piles to be driven. If only timber piles are contemplated, a lighter hammer could then be used than if concrete or long steel piles were being employed. We are equipping our two new pile drivers with hammers having a capacity of 15,100 ft-lb. The hammers will be driven by compressed air and each pile driver will have a compressor car containing two 600-cfm rotary compressors.

Spring-Rail vs. Rigid Frogs

With respect to riding qualities and economy of maintenance, what are the relative advantages of spring-rail and rigid frogs for main-line service? To what particular class of main-line service is each best adapted? Explain.

Several Factors Govern Use

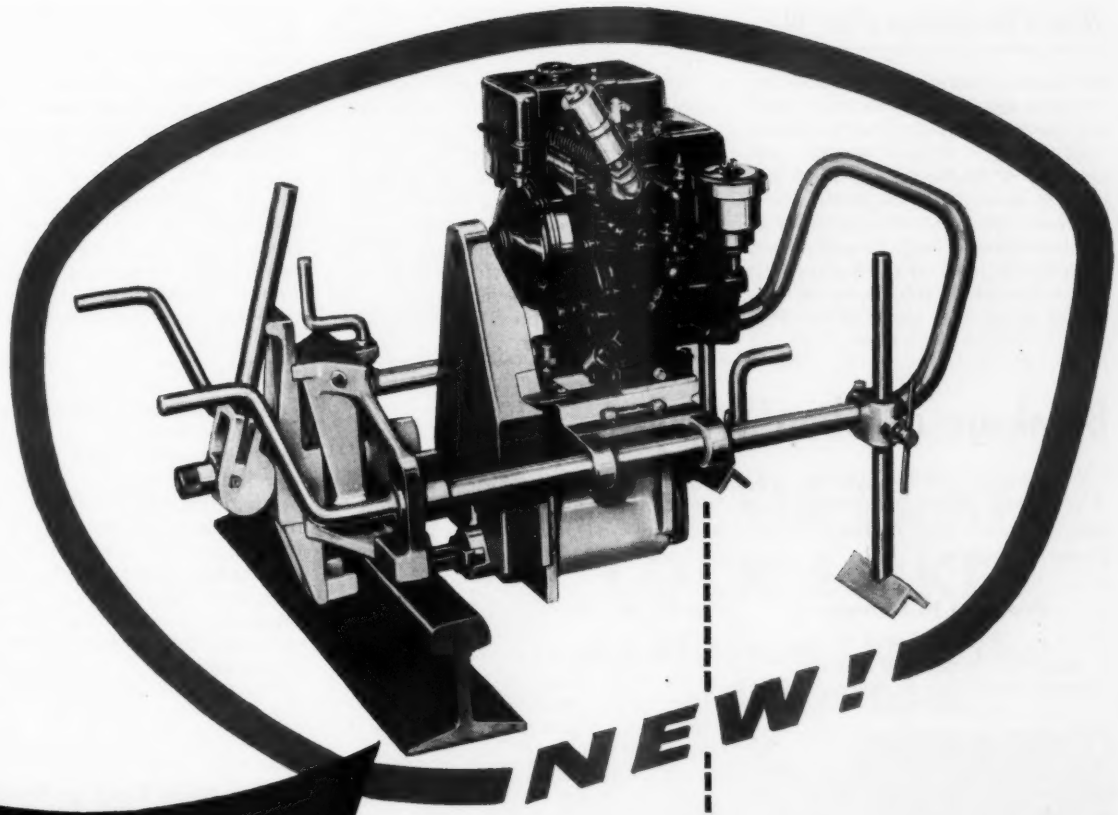
By F. W. Creedle

Chief Engineer, Ramapo Ajax Division
American Brake Shoe Company, Chicago

The following considerations govern the selection of the type of frog, spring or rigid, for use in main-line turnouts. These remarks apply primarily to tracks carrying medium to heavy tonnage, and the comparison is between a railbound manganese frog and a spring frog:

(1) Desire for maximum passenger comfort. The spring frog provides the nearest approach to a continuous running surface for the wheel. In many cases it is not possible for a passenger to determine when the car is passing over the spring frog. If a railbound manganese frog is maintained by periodic repairs to restore the running surface, the impact is held to a minimum and the riding quality is improved.

(2) Total cost, including initial cost and cost of inspection and maintenance, also the total life to renewal. In most cases the initial cost of the spring frog is slightly greater than the railbound, depending upon the design of both frogs. The cost of maintenance on a railbound manganese frog is limited mainly to grinding and welding repairs necessary to restore the surface of the wings and point. Inspection costs are at a minimum. On the spring frog, most of the maintenance is on the hold-downs and the spring assembly that protect the movement of the spring rail—also the thimble or shoulder bolt which permits movement of the toe end of the spring rail. In some cases a railroad will replace the spring frog after a certain period of use (depending on tonnage and per cent of traffic using the turnout run) and return it to



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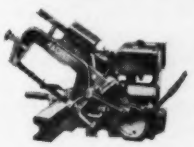

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the manufacturer for complete inspection and repairs, thereby holding the field repairs to a minimum.

(3) Traffic. If any sizable percentage of traffic (roughly 25 per cent or more) is through the turnout run, the general practice is to use a railbound frog. In some cases retarders placed on the spring rails have extended the lives of the spring frogs and made it possible to use them where there is considerable traffic through the turnout run.

(4) Restrictions on use. The railbound frog can be used anywhere, whereas the use of the spring frog is sometimes restricted because of paved areas, platforms, or the location of the frog on a curve. Some roads have certain locations, subject to heavy snow or icing conditions, where they restrict the use of spring frogs. This is particularly true if the location is not accessible for normal inspection and maintenance.

Each railroad has a standard practice set up governing the use of spring frogs vs. railbound frogs and it is noted that, from time to time, railroads have switched their preference from spring frogs to railbound manganese frogs and vice versa. This is the result, no doubt, of their individual experiences with both frogs. Improved design and better methods of field maintenance may also bear on such decisions.

Breakage of Shop Windows

What practical methods can be used to reduce the breakage of windows in shops and enginehouses? Should the replacement of broken glass be done currently or should it be programmed? Explain.

Program in Summer

By E. M. Enger
Supervisor Bridges and Buildings, Chicago, Milwaukee, St. Paul & Pacific, St. Paul, Minn.

Many railroads still have old shop buildings and enginehouses with wooden window frames and multiple-light, large-size window sash. We have found breakage in this type of window quite heavy, especially during the summer months, due to rough handling of the sash and careless handling of material by employees. The breakage is greatly reduced in the winter when windows are not opened and employees are more conscious of heat loss in the structure. During the summer months we normally program the glass replacement and replace all broken glass at intervals. The missing lights do not then create any problem, unless they directly affect a machine or electrical apparatus. Such being the case, we make the replacement as soon as possible.

During the winter months, however, it is necessary to make window light replacements as the breakage occurs to conserve heat in the structure.

At points where we have steel sash we have experimented with making broken window replacements with wire insert glass and have found it to be very satisfactory. Even though the original cost of the glass is considerably in excess of the cost of DSB glass, we have found the need for glass replacement practically non-existent after the wire glass has been installed. In checking back on these installations it has been found that individual panes have been struck and cracked in several places without dislodging or becoming loose, thus proving our theory that the added cost of the wire glass is more than made up in the labor saved in replacements.

When window frames and sash are worn out, we have replaced some with glass block installations which fill the window opening. The original cost of this type of replacement is considerably higher than replacement in kind. However, if the blocks are properly installed and ventilator sash are incorporated where required, the future maintenance problem is pretty well eliminated.

Use Glass Block or Plastic

By C. J. Bonnevier
Engineer of Buildings, Chicago, Burlington & Quincy, Chicago

Breakage of window glass in shops and enginehouses has always been more or less of a problem. I believe that if the broken glass is to be replaced in kind, it should be done currently.

However, in recent years, in installations where the window sash is in especially poor physical condition, it has been our practice to substitute glass blocks. In this way we reduce the possibility of glass breakage, save the cost of replacing the sash, and at the same time pro-

vide an installation which is acceptable from the viewpoint of both utility and appearance. Such installations also are practically free of maintenance over many years.

Another approach to the problem, more recently, has been the use of plastic sheets cut to the proper size and substituted for the glass. These are the new polyester plastics reinforced with fiber glass mat. They come in various colors and tints. In our applications we have used the semi-clear type which transmits 85 per cent of the visible light. In one of our latest enginehouses we have used this semi-clear plastic in all of the windows except in office areas and other spaces where optimum visibility is necessary.

We have also used this semi-clear plastic in the overhead doors of freighthouses where we formerly used glass. Here the problem was not merely accidental breakage, but the prevention of thievery. Thieves would break the glass and, operating the door handle from the inside, gain entrance to the freighthouse.

It also has been our practice to install wire guards inside the windows in freight rooms and freighthouses to prevent the breakage of glass due to freight handled on trucks—as well as to discourage burglary.

I believe the substitution of plastic for window glass, where it represents a change in policy, should be programmed because of the relatively large expenditure.

Replace Currently

By J. A. Jorlett
Engineer Structures, Pennsylvania, Baltimore, Md.

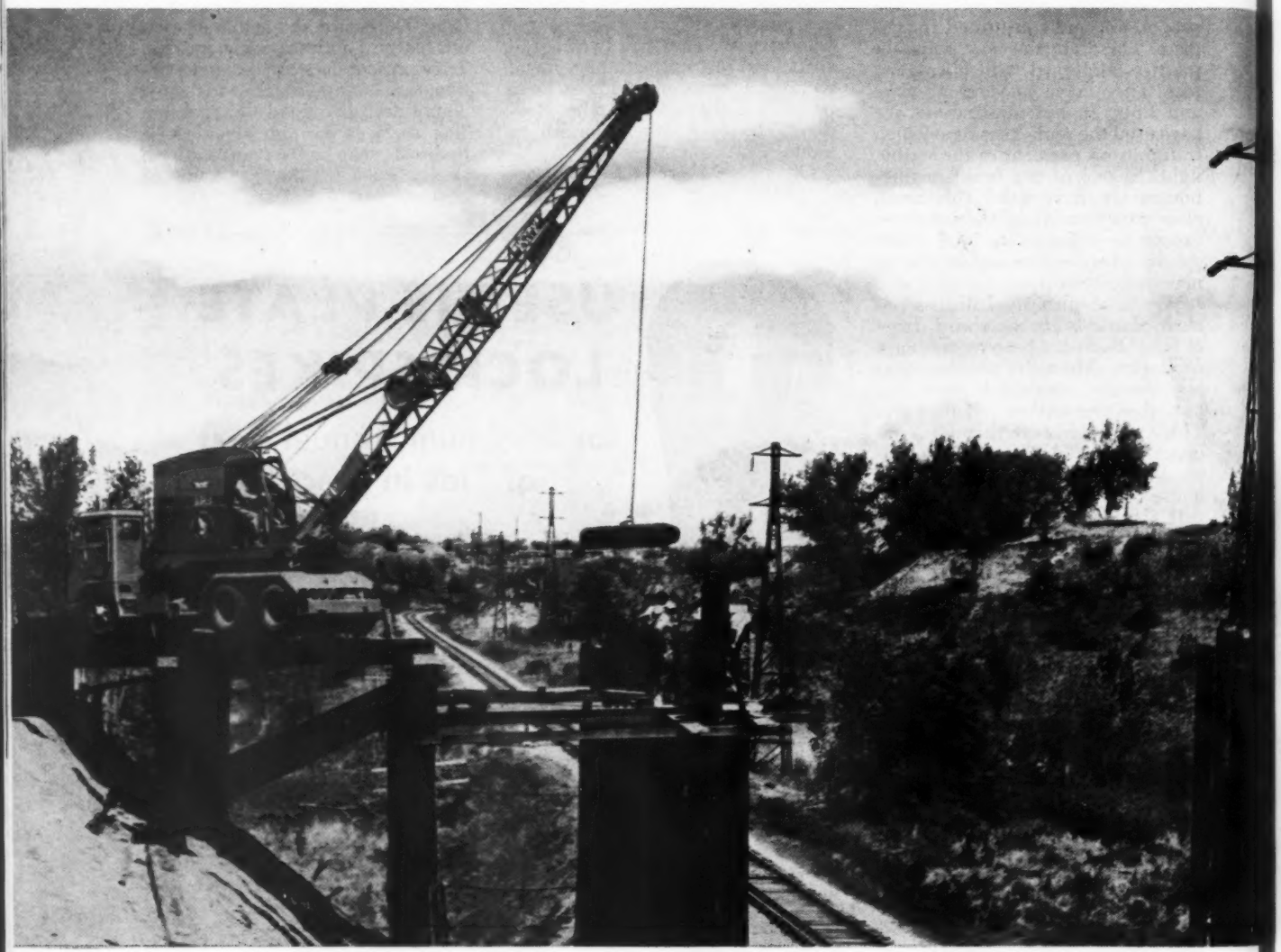
The breakage of window glass in shops and enginehouses can be attributed to various causes and therefore the methods of reducing this breakage can be correlated to the cause.

Many older shops have wood sash and muntins, usually a combination of fixed sash with small sized lights of glass and pivoted sash. Warping of the sash, decay of the untreated wood, drying and falling out of putty, and rough handling of the pivoted sash causes cracking of the glass, loosening and falling out of complete panes, or breakage of the glass. I will restrict the use of the word "break" in its various tenses in the following discussion to mean partially fallen out pieces or completely fallen out lights, or panes.

Metal window sash of the various commercial types—with combinations of fixed, pivoted, or projected movable sash—unless kept painted, puttied and otherwise maintained to assure free movement, have all the inherent disadvantages of the wooden sash. They will twist out of shape and rust in the thinner metal sections. Frozen movable parts can be easily damaged by careless handling. The result: cracked or broken lights.

Of course, there is the replacement in kind and the matter of better housekeeping to reduce the conditions mentioned above. For some twenty years now glass blocks have been successfully used for replacement in these large openings, either for complete closure or in combination with frames for movable sash. Glass blocks are obtainable in various patterns and two common sizes. They present on attractive fenestration, are weathertight and, most important, give good illumination. The surfaces are quickly cleaned by brush, soap or hose applications. Oddly enough, the breakage of

AT VARIOUS POINTS ALONG THE LINE GREAT NORTHERN USES BUCYRUS-ERIE CRANES and EXCAVATORS



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glass blocks in occupied buildings, willfully or accidentally, has been unusually slight.

I would like to inject into this reply two of my pet theories on the willful breakage of glazed openings. The first is to get broken glass-block lights replaced quickly. The sight of a broken block seems to arouse the desire in some juveniles and other mischief-bent persons to use the broken lights as targets for additional damage. My other theory or "pet peeve," which causes me to rave at our mechanics or tradesmen, is the practice of leaving the little paper stickers which carry the name of the glass manufacturer, and the quality and thickness of the glass, on the light when it is being replaced. Usually it will be left on the exterior side. These stickers seem to make an attractive bull's-eye for a would-be marksman.

Other replacements for multiple sash are corrugated glass panels set in special frames. These fixed glass panels can also be designed with a frame for a movable sash. The glass can be obtained in various patterns, tints, with or without wire inserts and in structural thicknesses.

Making an increasing appearance is the plain or corrugated plastic sheet for glass replacement. This material is translucent, shatterproof or shatter resisting, nonwarping, easily cut and fabricated in the field, and readily fastened in place by caulking or special attachments. The plastics are of several types depending on the materials used in their manufacture. Some of them are designated by the Fire Underwriters as "slow-burning" and hence are not permitted in certain districts in some municipalities. Advancements in the science of producing these plastics have reduced their flammable characteristics.

The replacement of broken glass should, in my opinion, be done currently. This can be a costly item in shops and enginehouse in areas where no B&B gangs are headquartered. If reliable reports on the number, sizes, and types of broken lights are received by the supervisor, a mechanic in a light truck can carry sufficient glass, tools and appurtenances to the site and make replacements at a reasonable cost. Where labor agreements permit, the use of local glazing concerns will be found the most reasonable and quickest means to replace broken lights.

Significance of pH Factor

What is the significance of the pH factor in water analysis? How does this factor affect the usability of water for cooling and heating purposes in diesel locomotives? Explain.

Highly Important Factor

By I. C. Brown
Water Engineer, St. Louis-San Francisco, Springfield, Mo.

The term pH indicates the degree of acidity or alkalinity. A pH of 7.0 is neutral and above 7.0 indicates an increase in the alkalinity. Likewise, a decrease in pH below 7.0 indicates an increase in acidity.

The pH factor of a water supply is important in determining the treatment to be used to condition the water for its intended service. If the water is to be zeolite softened or demineralized, the pH factor is vital in selection of the proper exchange material.

For cooling purposes the water should be free from scale-forming minerals and the pH factor controlled within the range most effective for the corrosion inhibitor being used. Generally the pH should be above 8.0 to protect ferrous metals and below 9.0 to protect aluminum parts.

For heating or boiler purposes the water should be free from scale-forming minerals and the pH should be above 8.5 to prevent corrosion of storage tanks and feed water appliances.

The pH factor is important, but it is only one of a number of tests necessary to regulate the quality of the water so as to obtain maximum results from the equipment in which it is used.

Has Great Significance

By H. M. Schudlich
Engineer of Water Service, Northern Pacific, St. Paul, Minn.

The pH factor of a water is very important and has great significance in evaluating the quality of heating and cooling waters. Fundamentally defined, pH is the only true measure of the intensity of a water's alkalinity or acidity. Whether a cooling system will deteriorate or be fully protected can be accurately predicated by determining the pH. Likewise, it can be determined if a scale or corrosion-preventing chemical reaction is completed by measuring the pH. Thus, it can be appreciated that the control of the pH is of importance in all the various phases of water conditioning.

What is meant by pH? It is defined by the dictionary as "Sorenson's symbol denoting the negative logarithm of the concentration of the hydrogen ion in gram-atoms per liter.—This scale permits the expression of both acidity and alkalinity in units which can be measured directly and has come into extensive use." In pure water the ion product constant is 10-14 and since the hydrogen and hydroxyl-ion concentrations are equal, the solution is neutral and has a pH of 7. Solutions with a pH of less than 7 are increasingly acid; conversely, solutions with a pH greater than 7 are increasingly alkaline. The expression is logarithmic, each unit expressing a concentration ten times greater than the preceding unit.

Pure water, is neutral, has a pH of 7.0 at 70 deg F. and will have a pH of 6.1 at 212 deg F. When used in a boiler at 125 psi gage, the pH of this same water will have dropped to 5.7. The water is now definitely acid due to the increase in temperature and will attack metals. The presence of carbon dioxide will reduce the pH further and increase the intensity of the corrosion. Also the presence of oxygen will increase the magnitude of the corrosion. All waters contain these dissolved gases; therefore, corrosion preventive treatment is necessary by means of pH adjustment.

In order to prevent the solution of iron in water the pH must be maintained above 9.6. This is readily accomplished in cooling systems by the addition of proper alkalies. Soda ash and caustic soda are used to raise the pH. The addition of chromates and nitrates is necessary for the control of oxygen corrosion and, with a properly adjusted pH, no trouble should be expected in a cooling system, even though the water is continuously maintained at 180 deg F. In the ordinary methods of analysis, pH is not determined. All inhibitors have a definite known alkalinity and it is known that if the inhibitor concentration is maintained at a predetermined point, the pH will be adjusted so that corrosion will not be present.

In order to complete the chemical reaction between the conditioning chemicals and the steam generator

feedwater, a pH of 10.5 must be maintained. This critical lower limit of alkalinity will be present if the methyl orange reading is greater than 25 grains per gallon, and the excess alkalinity over the total dissolved solids is approximately 35 per cent. If the chemical analysis of the boiler water shows it to be properly treated and the steam generator is free from corrosion and scale, it can be assumed that the pH is at the optimum point.

The pH of a solution is difficult to determine accurately. It can be done either electrometrically or colorimetrically. If accuracy is required, the former method must be used. If the solutions are either colored or turbid, obviously the colorimetric method cannot be considered. The work must be done in a well-equipped laboratory with trained personnel who understand the procedure and who can evaluate the possibilities of error.

Even though pH is definitely important, it is seldom determined as a routine check. Chemical analyses are more rapid and reliable. But back of these chemical analyses lies a wealth of research in which the pH determination played a very important part.

pH Range Must Be Maintained

By E. R. Schlaf
Assistant Superintendent Water Service, Illinois Central, Chicago

The term pH is a small symbol with a big definition. It is the logarithm of the number of liters of a solution which must be taken in order to contain one gram-ion of hydrogen. There is only one gram-ion of hydrogen in 10 million liters of pure water. Since the logarithm of 10 million is 7, it is evident that the pH value of pure water, or of any neutral solution, is 7.0. In acid solutions, the pH value is less than 7.0—in alkaline solutions it is more.

A normal solution of acetic acid will dissolve a given quantity of limestone, as will an equal quantity of a normal solution of hydrochloric acid; however, the latter, having a lower pH value, will do the job more quickly. While over-simplification generally leads to inaccuracy, pH may be used to denote the intensity or degree of acidity or alkalinity of a solution. Since pH is really a logarithm, it can be seen that a pH of 9.0 is 10 times as alkaline as a pH of 8.0; a pH of 3.0 is ten times as acid as a pH of 4.0 etc.

Water circulating through diesel engine cooling systems may contact iron, copper, aluminum and brass, an alloy containing zinc. Aluminum and zinc are attacked by both low-pH water and high-pH water. Iron is attacked only by low-pH water. Thus, it can be seen that the mere addition of a strong alkaline would protect the iron at the expense of the other metals. The obvious solution to the problem, therefore, is to control the pH, holding the value between 8.0 and 9.5. Certain chemicals called buffers are added to prevent damage to zinc and aluminum due to possible excessive treatment. There are other problems involved in the treatment of diesel cooling water, and their solution must be integrated with pH control.

Diesel boiler water passes through steel coils, so the pH value may be extremely high without causing damage. There are other problems to consider here too, such as oxygen attack and sludge conditioning. Nevertheless, the proper pH range must be maintained at all times.

Helps From Manufacturers

The following compilation of literature —including pamphlets and data sheets —is offered free to railroad men by manufacturers to the railroad industry. To receive the desired information, write direct to the manufacturer.

TAMPING POWER JACKS. Bulletin 259, illustrating and describing the manufacturer's recently introduced Tamping Power Jack, is now available. The two-page bulletin is illustrated with action photographs and presents specifications and outstanding features of the machine. (Write: *Nordberg Manufacturing Company, Dept. RTS, Milwaukee 1, Wis.)*

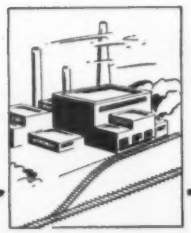
CRAWLER TRACTORS. Performance and cost data on the DW20 tractor and matched equipment are contained in a 16-page booklet recently published. The two-color brochure shows the equipment that is available and, in addition, discusses the engineering and production characteristics common to these units. The booklet, also available in French, Spanish and Portuguese, is designated Form No. DE6150. (Write: *Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.)*

LEASING M/W EQUIPMENT. Citing the advantages—especially to the short line railroad—of the leasing of trackwork machinery, is the purpose of a recently issued brochure. The folder is illustrated with action photographs of equipment which may be leased. (Write: *Kershaw Equipment Leasing Corporation, Dept. RTS, P. O. Box 510, Montgomery, Ala.)*

CRAWLER TRACTORS. A new 16-page, two-color catalog, designated MS-1100, has been made available illustrating the engineering, design and operating highlights of the HD-11 diesel-powered crawler tractors. The new catalog, which features a series of assembly and parts photographs, also contains specifications and information pertaining to the line of equipment matched to the HD-11 to increase its versatility. (Write: *Tractor Group, Dept. RTS, Allis-Chalmers Mfg. Co., Milwaukee, Wis.)*

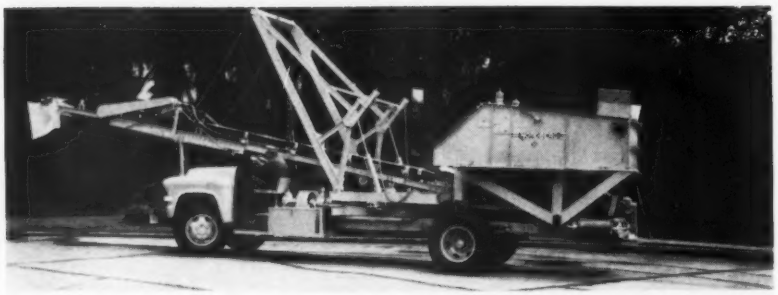
FLANGEWAY GUARDS. A recently printed descriptive folder describes the advantages of the "Guardmaster" flangeway guard for railroad crossing installations. The four-page, two-color folder is illustrated with photographs and drawings which show the construction and applications of the device. In addition to the specifications and descriptions, the folder details many of the railroad items that are stocked in the manufacturer's warehouses. (Write: *Kasle Steel Corporation, Dept. RTS, 4343 Wyoming Avenue, P.O. Box 536, Roosevelt Park Annex, Detroit, Mich.)*

WOOD-BLOCK FLOORS. A four-page folder has recently been made available, describing the installation, maintenence and outstanding features of Dura-Wood block flooring. One page of the folder is devoted to a description of the manufacturer's strip flooring. Complete specifications for both types are presented. (Write: *E. L. Bruce Co., Dept. RTS, Memphis 1, Tenn.)*



PRODUCTS OF MANUFACTURERS . . .

. . . new, improved equipment, materials, devices



OFF-TRACK BALLAST CLEANER

A SELF-PROPELLED, off-track stone ballast cleaner has recently been made available—especially designed for reclaiming ballast where track has been taken up. The cleaner consists of a Symons 4-ft by 8-ft rod deck screen and three conveyors which are mounted on a stripped-down GMC truck body. The power takeoff from the truck's engine drives variable volume pumps for the several hydraulic motors.

A set of hydraulic valves for controlling the screen and conveyors is located on each side of the cleaner. In addition, the truck's front wheels can be turned by remote control from each of these operator's positions. In operation, the cleaner will be towed backwards by a force-feed loader which will feed the ballast into the screen's hopper.

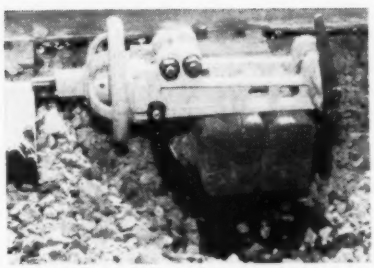
One long conveyor that can be raised, lowered and swung from side to side, is used to place the cleaned ballast on an adjacent track, to windrow an adjacent track, or to load the ballast directly into ballast cars or dump trucks. The other two conveyors are used to waste the dirt which is removed by the screen to either side. This off-track ballast cleaner was built to the specifications of the New York Central. *Nordberg Manufacturing Company, Dept. RTS, Milwaukee, Wis.*

NEW 200-HP MOTOR SCRAPER

A 14-CU YD CAPACITY motor scraper, designated the TS-260, has recently been made available. The 200-hp unit weighs approximately 39,600 lb and is powered by a 6-cylinder diesel engine. A hydraulic pump, gear driven from the rear of the engine crankshaft, provides positive drive and is said to assure constant "live" power for steering and scraper operation. The manufacturer claims that the curved bottom and 3-piece cutting edge with offset center edge provide faster penetration and better loading. Positive forward ejection and high apron lift are two other features of the TS-260.

Selective hydraulic steering has been incorporated into the scraper, providing two-speed steering by means of a steering control valve that is actuated from the wheel by direct linkage. A 30-deg turn of the steering wheel, right or left, operates the double-acting hydraulic steering jacks for full 90-deg steering. When a slower turning action is desired, a slight turn of the steering wheel permits a regulated pump flow which provides slower, smoother response. The TS-260 is equipped with synchronized four-wheel air brakes, plus an emergency brake system which goes into action in the event of possible failure of the air line.

Optional equipment and attachments available for the TS-260 include 26.50 x 25 wide-base tubeless tires as replacements for the 21.00 x 25 which are standard. *Allis Chalmers Mfg. Co., Tractor Group, Dept. RTS, Milwaukee, Wis.*



TIGHTENING device draws belt around tie as hand wheel is turned.

TIE BELT is locked in place as teeth are engaged in rectangular holes.

TIE BAND CAN BE REUSED OR RETIGHTENED

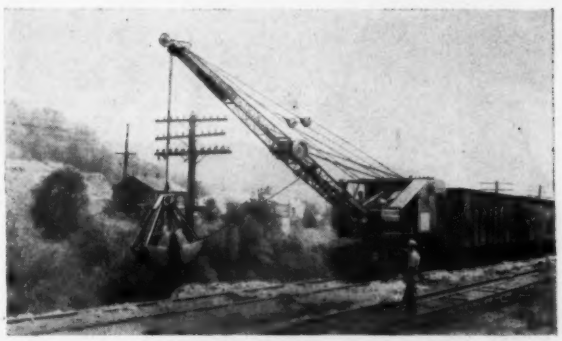
STEEL BANDS, to control cracking and splitting in crossties, can be reused or tightened as necessary to prolong the service life of the tie. The life of a cracked tie is said to be increased from 5 to 10 years by the application of the bands. The manufacturer recommends that the bands, known as Tie-Belts, be applied during the seasoning or drying-out period, but also states they can be applied easily to ties in the track without having to remove the ballast.

The bands are made of hoop steel, approximately 1¼ in wide and of sufficient length to extend around the tie.

In the aftermath of an Eastern hurricane, 7 Koehring self-propelled RailAids were rushed into the disaster area. Pictures show how they speeded track clean-up, salvage and repair to quickly re-establish main-line service.

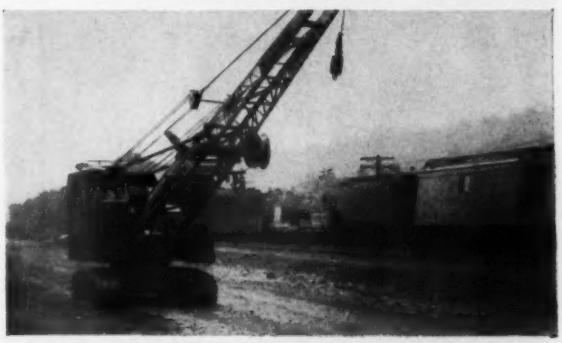
Repairing HURRICANE FLOOD DAMAGE

Cargo salvage — Shipments had to be rescued in a hurry. RailAid crane removed bales of unprocessed wool from wrecked box cars, transferred them into gondola cars, and, later, into trailer trucks. By this quick action delivery was completed without spoilage.



Washouts and landslides knocked out 500-foot sections of track in some places. Here, a Koehring 205 working on its own rail-propulsion car fills ballast along a weakened double-track section. Another RaidAid is working off-track behind the gondola cars.

Ties, rails, drainage pipe were quickly reclaimed, and put back into use. RailAids loaded ties on ballast boxes, moved on-track, towing rails, materials and supplies, re-laid rail — worked round-the-clock to open main line for regular service in record time.



On and off-track flexibility was an important factor in the disaster clean-up. Where track was blocked, RailAids took to high ground, worked and traveled off-car. Read all about it in the latest RailAid bulletin. Write to **Koehring Co., Milwaukee 16, Wis.**

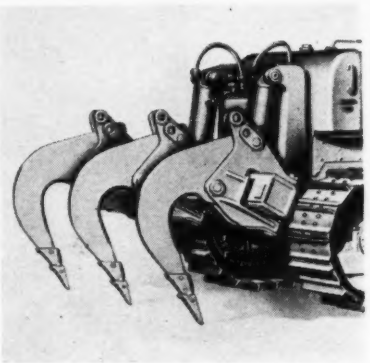
K659

KOEHRING RailAid® Subsidiaries: PARSONS, KWIK-AUX, JOHNSON

New Products (Cont'd)

They are provided at one end with stamped teeth, and at the other end, with a series of rectangular holes corresponding to these teeth. Each band is applied with a special device equipped with a roller chain for pressing the band uniformly onto the tie so that the stresses are distributed evenly on all sides. Thus, with all sides equally compressed, the splitting action of the wood is said to be controlled.

The band is applied by laying it by hand around the tie in such a way that the end with the teeth lies about half way across the tie. The other end, with the series of holes, is laid over the first end. The shoe of the tightening device, with the roller chain attached, is placed on the tie with the chain extending around the tie, over the band and through the shoe. The upper part of the tightening apparatus is then attached to the shoe, adjusted, and slack in the chain taken up. By turning the handwheel, the chain is drawn around the tie and the band is pressed onto the tie by the roller chain. With help of a ratchet, the tightening can be completed with greater force. The tightening process is continued until the teeth in the lower end of the band engages the rectangular holes above them. The projecting end of the band is then sheared off, the apparatus removed, and the teeth tapped lightly with a hammer to lock the band in position. It is said that the band can be used again or retightened by opening the teeth on the band. *Barthel & Associates, Dept. RTS, P. O. Box 24, Steger, Ill.*



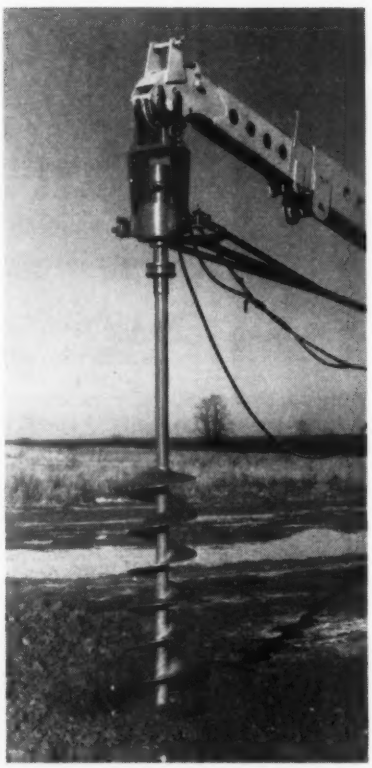
NEW TRACTOR-MOUNTED RIPPER

THE NO. 9 RIPPER, a tractor-mounted accessory designed specifically for use with the D9 tractor, has recently been announced. The manufacturer claims that increased maneuverability, better control of ripping depth and extreme utility are

the main features of the new ripper. The complete unit consists of two mounting brackets, two hydraulic cylinders, one beam assembly, and three teeth; total weight is 10,830 lb. It is operated hydraulically, working in conjunction with the manufacturer(s No. 50 hydraulic control. The ripper teeth are swivel mounted and will swivel up to 10 deg when rocks or other obstructions are encountered, thus minimizing side thrust. The ripper is used primarily to break up hard materials for subsequent scraper loading. Other jobs for which the No. 9 ripper is suitable include: Breaking up black-top or concrete; clearing and ripping roots to make dozer work easier; and, breaking frozen ground or stratified shale so that other machines can get in to work. *Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.*

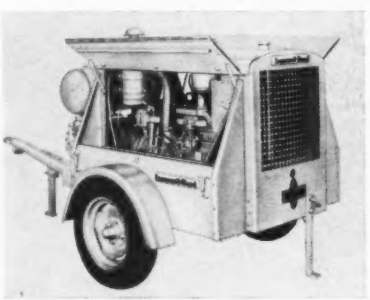
AUGER FOR VERTICAL OR HORIZONTAL BORING

A NEW earth auger attachment for use on the Model H-3 and H-5 Hydrocranes is said to be able to do both vertical and horizontal boring jobs. Among the vertical boring applications said to be possible are utilities work, fence posts, piling, footings and foundation underpinning. For horizontal work under streets, sidewalks, driveways and railroad tracks, the auger will bore holes for water and gas mains, sewers and electric conduits.



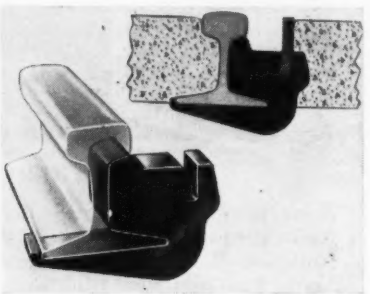
The attachment consists of the cutter head, 4-ft auger flight sections, a hydraulic motor and gear box, a torque arm extending from the motor bracket to the boom and a drain hose.

According to the manufacturer, the new unit drills holes up to 28 in. in diameter and has a depth capacity of 40 ft. Auger diameters range in size from 3 to 28 in. The cutter heads are fitted with carboloy teeth, and specially designed heads for drilling various types of materials are available. *Bucyrus-Erie Company, Dept. RTS, South Milwaukee, Wis.*



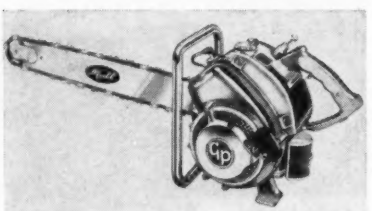
85-CFM PORTABLE ROTARY COMPRESSOR

A NEW GYRO-FLOW compressor—of 85-cfm capacity—has recently been announced. With this addition, the "Gyro-Flow" line of portable compressors has been increased to six sizes, ranging from 85 to 900 cfm. The Gyro-Flow 85 weighs 1,840 lb, fully equipped with tool boxes, fenders and two-wheel spring-mounted running gear. As a truck-mounted unit, the Gyro-Flow 85 weighs 1,375 lb and stands 42 in. high. It is driven by a Continental F-140 gasoline engine, equipped with push-button starting and six-volt batteries. *Ingersoll-Rand, Dept. RTS, 11 Broadway, New York 4.*



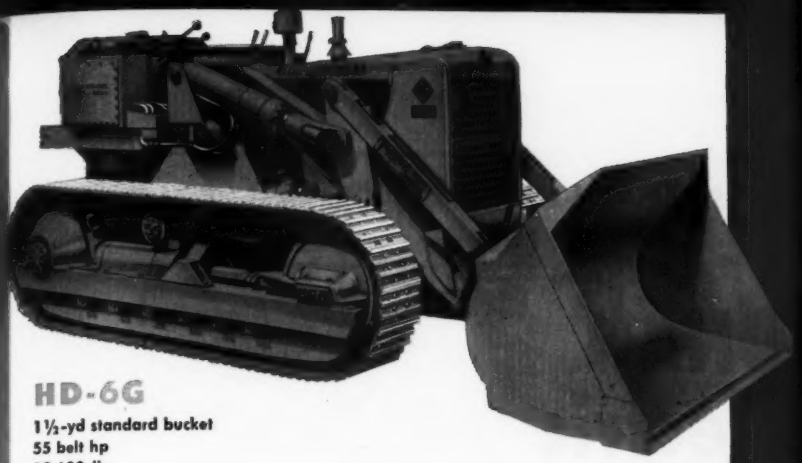
STEEL BLOCK FLANGEWAY GUARD

A SPECIALLY designed block of steel, which can be snapped into position at approximately 4-ft intervals on the rail to produce a flangeway, has recently been announced. After the block has been secured in position with a sledge hammer, a steel bar is placed vertically in a slot provided for this purpose in the top of the block. The steel bar, in position, is at top-of-rail height. The bar, which forms the flangeway, serves to prevent the crossing material—cement, planking, asphalt, etc.—from entering the flangeway area. The manufacturer claims that the "Guardmaster" is especially recommended for industrial installations. *Kasle Steel Corporation, Dept. RTS, 4343 Wyoming, Detroit, Mich.*



DIRECT DRIVE CHAIN SAW

THE MODEL "GP" chain saw is now being marketed featuring direct drive, 3,000-fpm chain speed, diaphragm carburetor, contour teeth and roller-bearing nose. The saw weighs 26 lb complete with bar and chain and can be operated as a 1- or 2-man saw. *Mall Tool Company Division, Remington Arms, Inc., Dept. RTS, 7740 South Chicago Avenue, Chicago 19.*



HD-6G

1½-yd standard bucket
55 belt hp
19,600 lb

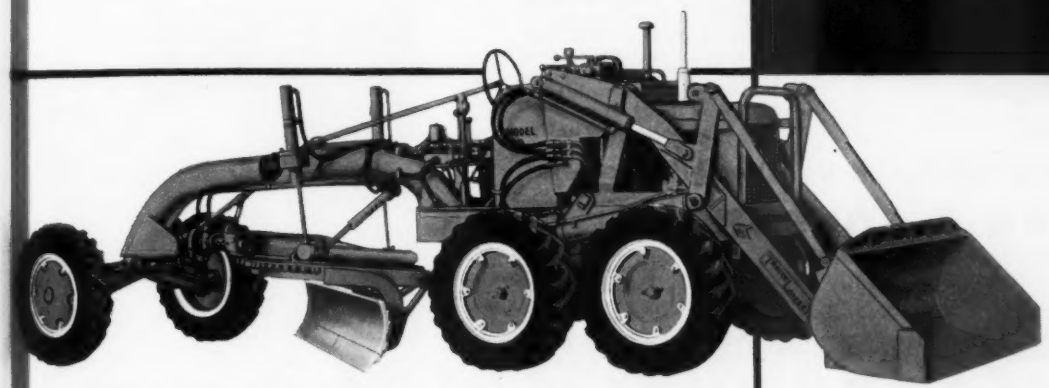
TRACTOR SHOVELS — these Allis-Chalmers units are available in 1½ to 4-yd sizes to do a variety of work — build up ballast, handle ties and rails, dig, carry, dump or spread any kind of material, build and maintain access roads — cut costs on dozens of other jobs. Their usefulness is multiplied by quick-change attachments — rock bucket, light materials bucket, blades, lift tongs, lift fork, crane hook and others.

See These Cost-Savers

AT THE RAILROAD SHOW

CHICAGO, SEPT. 17-20

BOOTHS 3, 4, 5, 21, 22, 23



MODEL D

50 brake hp
8,800 lb with gasoline engine
9,350 lb with diesel engine
4 speeds to 25 mph

MODEL D MOTOR GRADER combines unlimited versatility with outstanding ability at a cost but one-third that of a large grader. It handles all kinds of maintenance and light construction on rights-of-way, access roads and around yards and depots — plow snow — handles any material with hydraulically controlled ⅝-yd bucket. For jobs requiring a big grader, see the heavy-duty 120-hp Allis-Chalmers Forty Five.

TRANSPORTATION DEPT., TRACTOR GROUP, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

A Complete Line of Construction Machinery

- **4 Crawler Tractors** — 45 drawbar to 204 net engine hp
- **4 Tractor Shovels** — 1½ to 4-cu-yd standard buckets
- **2 Motor Scrapers** — 14 and 20 cu yd (heaped)
- **2 Motor Wagons** — 16 and 22 cu yd (heaped)
- **2 Motor Graders** — Heavy-duty, 120-hp Forty-Five; popular low-cost 50-hp Model D
- **4 Pull-Type Scrapers** — 4.7 to 20 cu yd (heaped)
- **3 Wheel Tractors** — 22.8 to 45.3 belt hp
- **Power Units** — Selection of types and sizes — *Plus matched attachments to fit the job*

Engines and Generating Sets

- **Engines and Power Units** — 9 to 516 hp — choice of fuels
- **Generating Sets** — 5 to 300 kw — Choice of fuels

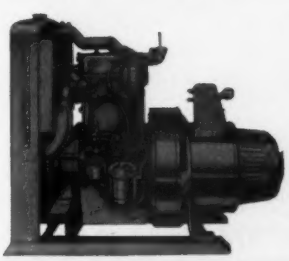
Material Handling Equipment

- **Fork Lift Trucks** — 2,000 to 10,000-lb capacity, diesel, gasoline, L-P gas
- **Industrial Tractors** — 2,400 to 12,000 lb drawbar pull
- **Motorized Platform Trucks** — 2,000 and 3,500-lb capacities

B-125

4-cylinder
125-cu-in piston displacement
27.8 max. brake hp at 1800 rpm

ENGINES AND POWER UNITS — Rugged, industrial-type Allis-Chalmers engines and power units are available in a wide range of types and sizes 9 to 516 hp to provide economical, dependable power for pumping, for small cranes, for driving tools, air compressors, generators — any use. They are offered with accessories and attachments to fit the application — your choice of fuel.



2 BD

2-cylinder diesel with 77-cu-in piston displacement
6 kw DC generator

GENERATING SETS — Allis-Chalmers sets, available in sizes from 5 to 300 kw, are complete, compact, economical sources of electricity, with built-in ruggedness for continuous as well as stand-by service, for any lighting or power need.

The Month's News

Railway Personnel

General

S. L. Mapes, assistant vice-president and former chief engineer of the Jersey Central, retired June 30.

B. M. Stephens, Jr., assistant chief engineer on the Southern Pacific Lines in Texas & Louisiana, at Houston, has been promoted to assistant to executive vice-president, Texas & Louisiana Lines, at that location.

Mr. Stephens joined the Southern Pacific as a draftsman at Houston following graduation from Texas A&M College

B. M. Stephens, Jr.

in 1926. He held various positions in the road's engineering department and in 1946 was promoted to architectural engineer. He was named assistant to chief engineer in 1949, and assistant chief engineer in 1951—the position he held at the time of his recent promotion.

Engineering

P. K. Cruchshank has been named assistant division engineer on the Central division of the New York Central at Columbus, Ohio, succeeding **I. N. Wigle.**

J. L. Penney, system bridge inspector on the Southern Pacific Lines in Texas & Louisiana, with headquarters at Houston, has been promoted to assistant division engineer at that location succeeding **J. F. Scheumack.** Mr. Scheumack has has been promoted to assistant chief en- San Antonio succeeding **H. A. Hunt,** who has been promoted to assistant chief engineer at Houston. Mr. Hunt succeeds **C. N. Billings** who has been named assistant chief engineer at Houston, succeeding **B. M. Stephens, Jr.,** whose promotion to assistant to executive vice-president is noted elsewhere in these columns.

F. D. Kinnie, chief engineer of the Eastern Lines of the Santa Fe at Topeka,

(*Continued on page* 100)

MODEL 441

PETTIBONE

SPEED SWING

THE MACHINE OF MANY USES

180° SWING LOADER · 4 Wheel Drive · 4 Wheel Steer
BUCKET · TOTE CRANE · FORKS
Off-Track Machine... One-Man Operated

LAYS RAIL • LIFTS TOOLS ON AND OFF TRACK

ROOTS AND LOADS TIES

BUILDS SHOULDERS • STOCK PILES

REMOVES SNOW FROM STATIONS, YARDS, TRACKS

PETTIBONE MULLIKEN CORPORATION

4700 WEST DIVISION STREET • CHICAGO 51, ILLINOIS • SPaulding 2-9300 • **BULLETIN No. P165**

Railway Personnel (Cont'd)

Kan., has retired after 46 years of service. **H. E. Wilson,** district engineer at Topeka, has been promoted to chief engineer succeeding Mr. Kinnie.

F. S. Schwinn, whose retirement as district engineer of the Gulf District of the Missouri Pacific at Houston was recently announced (RT&S, Aug. p. 52), was born June 20, 1899, at Ft. Scott, Kan. After attending the Lewis & Armour Institutes, he joined the Chicago & Alton, November 1, 1907, as a rodman at Joliet, Ill. The following year he joined the

F. S. Schwinn

Southern Pacific in the same capacity at Sacramento, Calif., subsequently working as draftsman, instrumentman, and assistant engineer. In 1917 he was named assistant superintendent on the International & Great Northern at Palestine, Tex., transferring to Houston, Tex. in 1917. From 1918 to 1920 he served as engineer for the receiver of the IGN and in the latter year was promoted to chief engineer. In June 1925 he was appointed assistant chief engineer of the Missouri Pacific at Houston and on March 2, 1956, was appointed district engineer of the Gulf district—the position he held at the time of his recent retirement.

George V. Guerin, assistant chief engineer on the Great Northern at Seattle, Wash., has been promoted to chief engineer succeeding **R. R. Manion** who, as announced elsewhere in these columns, has been named assistant vice-president, engineering, on the New York Central. **L. G. Reichert,** district engineer for the road's Eastern Lines with headquarters at Duluth, Minn., succeeds Mr. Guerin. **B. G. Anderson,** principal assistant engineer for Western Lines at Seattle, succeeds Mr. Reichert. **K. E. Wyckoff,** division engineer at Spokane, Wash., has been named office engineer for Western Lines at Seattle, succeeding **W. G. Eschwig,** who has been named principal assistant engineer at Seattle, succeeding Mr. Anderson. **B. H. Iseminger,** instrumentman at Spokane, has been promoted to division engineer succeeding Mr. Wykoff.

Mr. Guerin, who has been with the Great Northern's engineering department for 32 years, joined the road as a draftsman in 1924. He was named bridge inspector in 1926, assistant bridge engineer in 1929, bridge engineer in 1940 and in 1954 was named assistant chief engineer at Seattle, the position he held prior to his recent promotion.

Mr. Reichert joined the Great Northern

George V. Guerin

L. G. Reichert

B. G. Anderson

as a rodman in 1920, serving successively as inspector and instrumentman in the engineering department before being promoted to division engineer at Grand Forks, N. D., in 1937. He was transferred to Willmar, Minn., in 1939 and in 1951 was promoted to office engineer with headquarters at St. Paul, Minn. He was named district engineer at Duluth in 1953.

Mr. Anderson joined the Great Northern in 1940 as a chainman, and served successively as rodman and instrumentman prior to his appointment as division engineer at Great Falls, Mont., in 1949. In 1954 he was promoted to office engineer at Seattle, and in February 1956 was named principal assistant engineer at that location—the position he held prior to his recent promotion.

A. K. McKeithan, Jr., whose promotion to division engineer of the Palestine & San Antonio divisions of the Missouri Pacific was recently announced (*RT&S*, Aug., p. 52), began his service with the Missouri Pacific as a file clerk in the general office in June 1923. The following year he entered the engineering department as a chainman and rodman at Houston, later serving as instrumentman at that location until August 1941 when he was promoted to roadmaster at Harlingen, Tex. He was transferred to Beaumont, Tex., in 1943 and in August 1946 was named assistant division engineer at DeQuincy, La.—the position he held at the time of his recent promotion.

R. R. Manion, chief engineer of the Great Northern, has joined the New York Central as assistant vice-president, engineering, in charge of engineering and maintenance of way and structures for the system.

Mr. Manion, was born May 7, 1911, at Phillipsburg, Kan., and received his

R. R. Manion

higher education at the University of Illinois. He entered railroad service in 1934 with the Pennsylvania at Philadelphia. He served as assistant supervisor of track at various locations on the PRR from January 1935 until September 1938, when he joined the Great Northern as office assistant in the office of vice-president operations at St. Paul, Minn. From May 1940 to January 1942 he served as trainmaster and division engineer at Klamath Falls, Ore., and on the latter date was named terminal trainmaster at Minneapolis, Minn. After serving in World War II, he rejoined the Great Northern in January 1946 as engineer maintenance of way at St. Paul, which position he held until January 1954 when he was promoted to chief engineer.

R. D. Nelson, assistant engineer on the Chicago & North Western at Boone, Iowa, has been promoted to division engineer of the Sioux City and Northern

Railway Personnel (Cont'd)

Iowa districts of the Iowa division and the Nebraska lines of the Twin Cities division with headquarters at Sioux City, Iowa. Mr. Nelson succeeds **L. J. Deno,** who has been named division engineer of the Lake Shore division with headquarters at Green Bay, Wis., succeeding **W. F. Wilbur,** who has been transferred to the Galena division with headquarters at Chicago. Mr. Wilbur succeeds **M. S. Reid** who has been promoted to assistant engineer—maintenance, at Chicago, succeeding **W. H. Huffman,** assigned to special duties.

K. A. Truman, district engineer on the Canadian Pacific at Calgary, Alta., has been promoted to assistant engineer, maintenance of way, of the Prairie and Pacific regions of the CPR with headquarters at Winnipeg, Man., succeeding **G. B. Alexander,** who has retired. **W. A. Short,** division engineer at Vancouver, B. C., has been named assistant district

K. A. Truman

engineer at Calgary, succeeding **R. A. Swanson,** who has been promoted to district engineer succeeding Mr. Truman.

Mr. Truman was born at Craik, Sask., June 8, 1911, and was graduated from the University of Manitoba. He served as chainman, laborer and transitman on the CPR from 1929 until 1944 when he was promoted to roadmaster. He was advanced to division engineer the same year, and in 1950 was named assistant district engineer. He was made special engineer in 1951 and later that same year he was promoted to district engineer the position he held at the time of his recent promotion.

James F. Zanolio, whose promotion to locating engineer of the Denver & Rio Grande Western at Denver (*RT&S,* Aug. p. 52), was born December 4, 1892, at Silver Plume, Colo. He entered railway service in June 1912 with the D&RGW as a chainman. After serving successively as levelman and transitman, he joined the Colorado State Highway Department in 1920, returning to the D&RGW the following year as a transitman in the maintenance of way department. From 1927 until 1937 he worked with a private engineering firm and in the latter year rejoined the D&RGW as an assistant engi-

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This year marks the biggest in sales and acceptance in Gautier's history. Its outstanding performance under all track conditions has made it more in demand with track engineers and maintenance-of-way men than ever.

The Gautier is a heavy, one-piece rail anchor made of alloy steel. It is designed so that it can't be overdriven, so that it can be used again and again without losing its holding or gripping power, so that it can be applied with a maul or spike maul.

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Railway Personnel (Cont'd)

neer in the M/W department. In June 1938 he was promoted to master carpenter and in 1941 was named division engineer. In February 1953 he was promoted to valuation engineer—the position he held at the time of his recent promotion.

Rowland V. Gilbert, whose promotion to division engineer on the Chicago Burlington & Quincy was recently announced (*RT&S*, Aug., p. 52), was born January 29, 1911, at Onawa, Iowa. Upon graduation from the University of Iowa in 1934, he joined the Chicago, Milwaukee, St. Paul & Pacific, as a rodman. He worked as a bridge draftsman for the State Highway Commission of Wisconsin from April 1935 until April 1936, and in the latter month joined the CB&Q as a rodman on the Chicago and Ottumwa divisions. In April 1939 he was named instrumentman on the La Crosse division, and in 1941 joined the U. S. Corps of Engineers where he served for 2½ years, attaining the rank of major. In October 1945 he rejoined the CB&Q as a senior instrumentman on the Galesburg division—the position he held prior to his recent promotion.

C. S. Colvin, whose promotion to division engineer on the Missouri Pacific at DeQuincy, La., was recently announced *RT&S*, Aug., p. 52), was born July 10, 1892, at Kansas City. He joined the Missouri Pacific in 1913 as a bridgeman, subsequently serving as rodman and then as assistant engineer of the Houston Belt & Terminal. In 1920 he was named division engineer, later being promoted to assistant engineer of structures at Houston—the position he held at the time of his recent promotion.

Track

Simon Fogarty, Jr., track supervisor on the Central of Georgia at Union Springs, Ala., has been transferred to Millen, Ga. **Thomas O. Hassett,** apprentice track supervisor, has been promoted to track supervisor at Union Springs, succeeding Mr. Fogarty.

W. W. Toliver has been named roadmaster on the Santa Fe with headquarters at Wellington, Kans. Mr. Toliver, who will have jurisdiction over the Anthony, Fairview and Altus districts succeeds **J. C. Fenton,** who has retired after 45 years of service.

Water Service

Walter D. Gibson, whose retirement as water service engineer on the Chicago, Burlington & Quincy at Chicago was recently announced (RT&S, Aug. p. 52), was born July 7, 1891 at Pullman, Ill. He joined the Burlington in 1910, and since 1919 had served in the department of the engineer of buildings handling water service, coaling stations and diesel facilities. He was promoted to water service engineer in 1950.

(*More on page* 106)

A conversation about rail anchor holding power

Recently, we asked a track maintenance man whether he thought rail anchors should have high holding power. He answered something like this:

"Certainly. How else could they keep rail from slipping? The greater the holding power, the better."

Then we asked about skewed ties and ballast disturbance under anchored rails.

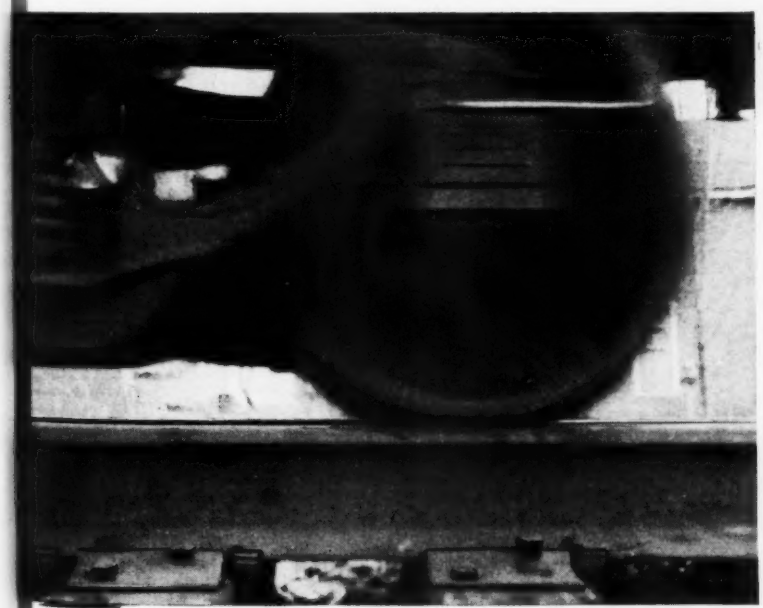
"That's an indication that rail has not been adequately anchored. For normal right-of-way, rail should be anchored at about every other tie. On grades, curves and under heavy traffic, there should be more anchors. Too few anchors place too much load on just a few ties. Result is that the force on each tie exceeds the ballast resistance causing skewing of the ties. If the anchor would be allowed to slip to avoid disturbing the ballast, it would not be performing its function—that of gripping the rail. Where there are skewed ties, then, it is necessary to add more anchors. This divides the load over a greater number of ties, avoids ballast disturbance, and holds rail properly in position.

"Where ballast collects moisture and freezes solid in winter, the ballast has no resilience. This puts extra stress on both the anchor and tie. Unless there is adequate tie-bearing surface, the anchor will cut excessively into the tie, causing accelerated damage."

We agree with this maintenance man. Adequate anchorage, high holding power and large tie-bearing anchor surface are essential to satisfactory, long-lasting and low-cost rail anchorage. True Temper Corporation, Railway Appliances Division, 1623 Euclid Ave., Cleveland 15, Ohio.

Big News for You at Our Booth (50-51) at the Convention in Chicago, Sept. 17-20.

New BULLDOG, with its 25% greater holding power, provide surest possible anticreep protection, especially in frozen ballast



When track is adequately anchored, stress is distributed over more ties. Ballast disturbance and tie skewing can thus be avoided.

True Temper's BULLDOG RAIL ANCHOR has a broad, deep and flat tie-bearing surface which reduces tie wear to a minimum

OTHER TRUE TEMPER RAILWAY PRODUCTS: BULLDOG Ballast Forks, Weed Cutters • BULLDOG Shovels • BULLDOG Safety Rail Forks, Hammers, Sledges • BULLDOG Scythes

TRUE TEMPER. BULLDOG RAIL ANCHOR

25% greater holding power . . . one unit . . . applied by one man . . . using any striking tool

Association News

Northwest Maintenance of Way Club

The first meeting of the season will be held on September 27 at the Midway Civic Club, 1931 University Avenue, St. Paul, Minn. The principal speaker will be John W. Storer, regional manager and forester of the Osmose Wood Preserving Company. His talk, which will deal with wood preservation as related to the railroads, will be supplemented by a moving picture.

American Railway Engineering Association

A number of committees have scheduled meetings to be held at the Conrad Hilton hotel, Chicago, in September during the conventions of the Roadmasters' and the Bridge & Bulding Associations. The committees and the dates of the meetings are:

Roadway and Ballast, September 17-18
Rail, September 19
Track, September 17
Buildings, September 17-18
Masonry, September 17
Highways, September 17-18
Records and Accounts, September 19-20
Economics of Railway Location and Operation, September 19-20
Contract Forms, September 19-20
Economics fo Railway Labor, September 20
Waterways and Harbors, September 19
Maintenance of Way Work Equipment, September 18-19
Clearances, September 19

Two other committees have scheduled meetings for September. The Committee on Water Service, Oil & Sanitation will meet in Room 1218 at the Association headquarters in Chicago on September 11, and the Committee on Yards and Terminals will meet at the King Edward Hotel, Toronto, Ont., September 10-11.

Supply Trade News

General

The **Union Bag-Camp Paper Corporation** has bought substantially all of the assets and business of the **American Creosoting Company.** It is planned to continue the business under the name of **American Creosoting Corporation,** a wholly owned subsidiary of Union Bag. **T. T. Dunn,** executive vice-president of Union Bag, has been elected president of American Creosoting, and **Harold C. Lucas** becomes executive vice-president and chief operating officer of the subsidiary.

"Kershawrama" Demonstration to Start on Erie October 1

An unusual track-maintenance demonstration, featuring a complete line of track-reconditioning equipment, will be staged near Chicago, beginning October 1, by the Kershaw Manufacturing Company, Montgomery, Ala., in cooperation with the Erie. The demonstration will take place on the tracks of the railroad at Boone Grove, Ind., between Mileposts 219 and 222. All railroad men in the country are invited to attend.

The "Kershawrama," as the demonstration is called, will feature the use of 10 different pieces of equipment in a complete track-rehabilitation project. The track will be stripped and undercut, ties replaced, ballast cleaned and returned to the track, and the track will be surfaced, tamped, lined and dressed. The equipment used will consist of the Kershaw spot tamper, two-wheel Kribber, track undercutter and skeletonizer, track crane, ballast cleaner, Jack-All, ballast regulator and plow, track broom, tie-bed scarifier and cleaner, and tie remover. Other machines made by the company will also be on display at the demonstration.

W. J. Joy, formerly of the mechanical department of the Illinois Central, has been named sales manager of the newly-formed Maintenance-of-Way division of the Western Railroad Supply Company at Chicago.

Karl L. Waller has been appointed general manager of the newly-formed Maintenance-of-Way division of the Western Railroad Supply Company at Chicago. Mr. Waller was formerly assistant to the sales manager of the Railroad and Industrial division of the Buda division of the Allis Chalmers Mfg. Co.

The United States Borax & Chemical Corp. has been formed by the merger of the former **United States Potash Company** into the former **Pacific Coast Borax Company.** The administrative office of the new corporation will be located in Los Angeles in the company's office building at 630 Shatto Place. The Pacific Coast Borax Company division will carry on Borax manufacturing and sales in the industrial field under the direction of **J. F. Corkill,** who has been named vice-president and general manager.

Personnel

V. H. Peterson, vice-president in charge of railway sales for **Fairbanks, Morse & Co.,** has been named vice-president in charge of engineering. He succeeds **J. F. Weiffenbach,** resigned. **James G. Graham,** eastern regional manager of railroad sales, has been transferred to Chicago as general manager of railroad sales for the company.

J. L. Hamilton, Jr., sales engineer for the **McKiernan-Terry Corporation,** has been named western sales manager for the Mead-Morrison division of the firm. Mr. Hamilton succeeds **S. F. Knight,** who has retired after 43 years with the company. Mr. Hamilton will make his headquarters in the Mead-Morrison division's Chicago sales office.

Robert C. Schulze, vice-president of the **P. & M. Co.,** has been elected president, with headquarters as before at Chicago, succeeding **Max K. Ruppert,** whose election as president of **Poor & Co.** was announced in the June issue. **Charles J. Miller,** assistant eastern manager of P. & M. Co., has been elected vice-president with headquarters as before in New York.

Supply Trade News (Cont'd)

Mr. Schulze is a native of Portland, Ore., and was graduated from the University of Oregon in 1940. After service in the United States Marine Corps from 1941 until 1945, he joined the P. &. M. Co. in December of the latter year as

Robert C. Schulze

service engineer. In 1948 he was appointed assistant general sales manager at Chicago, becoming vice-president in 1953.

Mr. Miller was born in Dexter, Mo., and is a graduate of Arkansas State College (1938). After a period of service with International Shoe Company, he entered the Air Force in 1940 and rose to the rank of lieutenant colonel. He entered the service of the P. & M. Co. in March 1946, and after service in mills in

Charles J. Miller

Johnstown, Pa., and Canton, Ohio, he was assigned to the southwest territory, working out of St. Louis. Later he was sent to the New York office where he was appointed assistant eastern manager in January 1948.

R. Simpson has been named regional sales manager for the New England territory of the **True Temper Corporation** with headquarters at Hingham, Mass. **E. W. Stack,** has been appointed to the Cleveland sales staff and **C. C. Connolly,** formerly Eastern Division sales man-

(*More on page* 110)

Advertisers IN THIS ISSUE

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Supply Trade News (Cont'd)

C. M. O'Donnell, sales engineer for the Blaw-Knox Company, has been named assistant manager of the grating department in charge of bridge decking, with headquarters at Pittsburgh.

ager, has been named Southeastern Division sales manager, to cover all railroads south of Philadelphia.

Robert Schey, formerly general superintendent of the car department of the Nickel Plate, has joined the **Rust-Oleum Corporation** Railroad Sales Division. He will make his headquarters at Cleveland, Ohio.

Russell E. Hoehl has been named assistant eastern sales manager of the **Russell Burdsall & Ward Bolt & Nut Co.** with headquarters at Port Chester, N.Y. **Alfred A. Binkerd** has been named district sales manager of the Philadelphia territory. Mr. Binkerd's headquarters will be at Ardmore, Pa. James M. Dill, Jr., has been named assistant to the vice-president, sales, with headquarters at Port Chester. Mr. Dill previously worked in the firm's Chicago sales department.

Weldon D. Willes, products manager of the Nordstrom Valve division of the **Rockwell Manufacturing Company,** has been named assistant to the president of the Locomotive Finished Material division with headquarters at Atchison, Kan. Mr. Willes' duties will include the coordination and integration of Rockwell products into existing Locomotive Finished Material production.

Charles Gruet, district representative in the Tractor Equipment division of the **Hyster Company,** has been promoted to manager of the firm's Manhattan sales office with headquarters in New York.

Obituary

Ralph N. Chipman, former manager of the Weed Killer department of General Chemical Division, Allied Chemical & Dye Corp., died on August 18 at his home in Plainfield, N. J., following a long illness.

E. F. Cottier, district manager for the Pacific Coast Borax Company at Auburn, Ala. was killed instantly in an automobile accident on August 5.

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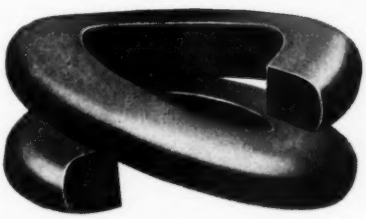

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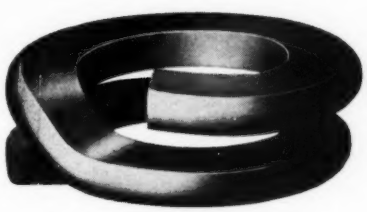

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They have been tested, tried and found more than adequate.

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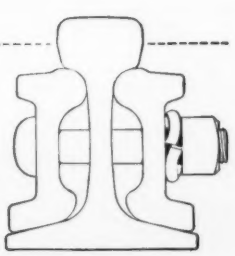

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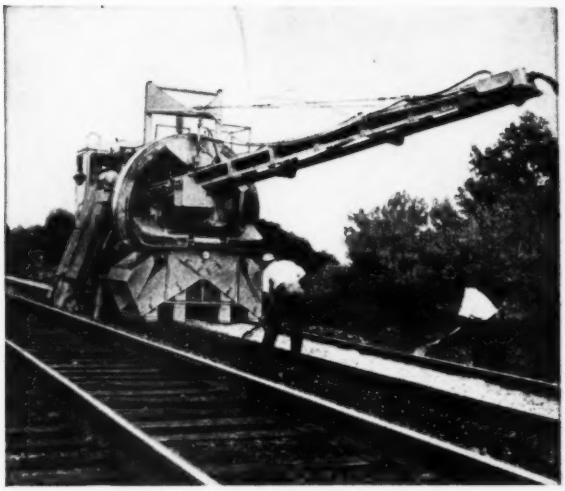

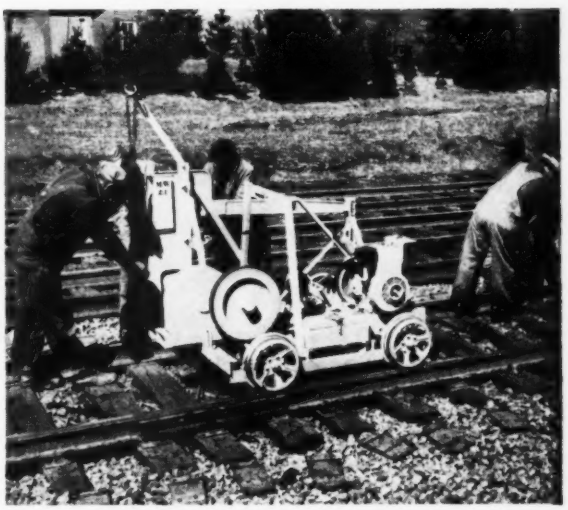

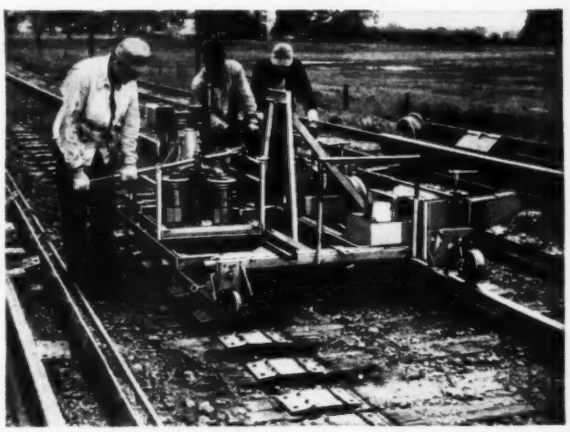

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